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FACTORS RELATED TO THE COGNITIVE APPRAISAL OF WORKPLACE HEALTH
AND SAFETY CHANGE

**Factors Related to the Cognitive Appraisal of Workplace Health
and Safety Change**

A thesis presented in partial fulfilment of the requirements for the degree of
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FACTORS RELATED TO THE COGNITIVE APPRAISAL OF WORKPLACE HEALTH AND SAFETY CHANGE

Abstract

Health and safety change is a critical and ongoing factor in New Zealand workplaces today, aiming to contribute to the enhanced health and safety performance of both organisations and society. There is a gap in the literature surrounding how and what factors relate to individual's responses to specific organisational change, such as safety-oriented change; the majority of literature focuses on restructuring and predominantly negatively experienced changes (Biggane, Allen, Amis, Fugate, & Steinbauer, 2017). We utilise the theory of cognitive appraisal (Lazarus & Folkman, 1984) integrated with a job demands and resources approach (Demerouti, Bakker, Nachreiner, & Schaufeli, 2001; Hobfoll, 1989) to explain why certain factors, such as Safety Climate, Role type, Perceived Scale of change, and Perceived Favourableness of change may relate to how individuals cognitively appraise change. Through the participation of 178 employees of various New Zealand organisations, within a multitude of industries and occupations, measures targeting the Perceived Scale at the personal and work unit level and Perceived Favourableness of change outcomes experienced, alongside measures of safety climate, challenge appraisal and threat appraisal with a number of demographic questions were distributed. Results demonstrated that Perceived Favourableness of change outcomes and Perceived Personal Scale of change played a key role in the appraisal process acting as situational factors predicting appraisal and emphasising the relevance of resource gain and its extrinsic and intrinsic value in change. Safety climate was found to not mediate responses to health and safety change, such as cognitive appraisal. Role type did not moderate appraisal. Findings indicated that organisations do not need to focus on developing a safety climate before implementing safety change and need to focus on perceptions of the scale and the favourable nature of change, utilising participation and involvement to achieve both desirable and functional change, and positive responses to the changes.

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Factors Related to the Cognitive Appraisal of Workplace Health and Safety Change

Chapter 1 - Introduction

Forty was the number of workplace-related fatalities reported in New Zealand in 2018. Each year this sobering and critical statistic is reported by WorkSafe New Zealand, and it appears to be improving with 52 fatalities in 2017 and 50 in 2016 (Worksafe, 2018). The historically poor performance is emphasised by workplace fatality statistics but also by more general statistics, such as in 2002, there were 258,400 work-related injury claims reported (Statistics New Zealand, 2017a). This is especially prominent when New Zealand's working population was 63% of 3.982 million, indicating an estimated 10% of New Zealand's working population was injured or reported an injury which is very high for a country in the OECD (Statistics New Zealand, 2017b). However, there have been improvements in New Zealand's safety performance and decreases in work-related injury claims since 2002, with 101 incidents per 1000 full-time employees in 2017, and 231,000 work-related injury claims lodged in 2017. A vital component of these improvements in health and safety performance as a whole is due to the legislative changes with the introduction of the Health and Safety at Work Act (2015). This has been critical in promoting a vast and diverse range of safety-oriented organisational change within New Zealand organisations and society.

Importantly, with any organisational change come responses from those exposed and with large amounts of institutionalised organisational change come a multitude of responses to these changes. The nature of responses to change is multifaceted, as responses are dictated by the subjective experience of the individuals exposed to the change (Oreg, 2006). Responses are defined as any cognitive, emotional, or behavioural reaction process to an organisational change

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event (Davy, Kinicki, Kilroy, & Scheck, 1988; Davy, Kinicki, & Scheck, 1991; Kiefer, 2002; Kiefer, 2005; Oreg, 2018; Piderit, 2000). These responses can be either positive, negative or even ambivalent (Bovey & Hede, 2001; Conway, & Monks, 2008). The key research question for the present study is: What factors are related to responses to health and safety organisational change? Essentially, responses to change can have vast implications at individual, organisational, and societal levels. Examining safety change holistically from a cognitive and behavioural response perspective is crucial, as change is ongoing, and often continuous and factors influencing responses need to be understood (Albert, Ashforth, & Dutton, 2000). The success of organisational change should not be solely determined by whether it achieved its organisational goal, but also by understanding how employees responded to it.

1.1 Rationale for the study

As a young adult in New Zealand I have had exposure to varied perceptions and attitudes towards health and safety in and around the workplace. I have observed ignorance to why safety is important and what it is implemented to do, arrogance as well as macho attitudes towards health and safety suggesting it not to be necessary. On the opposite end of the spectrum there can be an overemphasis on health and safety to the point where employees feel overloaded and restricted in their ability to work. However, there can also be attitudes towards health and safety which are balanced and view it as a necessary component of functional business and society with huge benefits financially and for the wellbeing of employees.

Furthermore, I have had exposure to a multitude of organisational change initiatives throughout different workplaces and have also witnessed how varied responses to organisational

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change can be between individuals and between change events.

It was evident from my interactions with friends and family working in a variety of different industries and positions, such as trade and construction, finance, and farming, to managers and labourers that perceptions and attitudes towards health and safety varied. My anecdotal experiences of safety perceptions and attitudes lead me to want to understand why New Zealanders respond to health and safety in different ways. However, I also identified that the transforming nature of health and safety has been a critical component of New Zealand business since 2015. Consequently, understanding what factors lead individuals to respond to health and safety change in a particular way could provide some practical insights to New Zealand business and potentially academic literature.

1.2 The present study

The present study focuses on factors which may predict how people respond to health and safety organisational change in the New Zealand work environment. Cognitive appraisal is the process of identifying a situation and its dimensions and articulating what these mean for the wellbeing of the individual (Lazarus & Folkman, 1984; Pahkin et al., 2014; Tomaka, Blascovich, Kelsey, & Leitten, 1993). It is the key response process in the present study, as it can aid in understanding the subjective experiences of change for individuals, as previous researchers have highlighted (Oreg, 2006). This study aims to employ an integrated approach utilising appraisal (Lazarus & Folkman, 1984), and demands and resources-based theories (Demerouti, Bakker, Nachreiner, & Schaufeli, 2001; Hobfoll, 1989) to help explain which specific factors may apply

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to health and safety as a change concept and how they may predict the appraisal of health and safety changes.

The key study variables, which will be introduced and explained in full shortly, are situational or demands-based aspects of change: Perceived Scale of change and Perceived Favourableness of change outcomes. Additionally, evidence highlights the relevance of health and Safety Climate as a resource in predicting safety-oriented behaviours (Griffin & Neal, 2002; Griffin & Neal, 2000) and we argue that Safety Climate may act as a mediating variable in the appraisal process. Finally, Role type was identified as a possible moderator of the appraisal process as job characteristics can act as resources for individuals to utilise in appraisal, predicting our dependent variables of threat appraisal and challenge appraisal.

The thesis is structured as follows:

Chapter 1 is a literature review and will present background and general information surrounding health and safety and organisational change. It will then build into appraisal responses to change, how demands and resources interact with appraisal, and then evidence and explanations of how our specific factors, such as Perceived Favourableness of change outcomes, Perceived Scale of change, Safety Climate, and Role type relate to Cognitive Appraisal. Ultimately, this literature review will present a defined conceptual model for this study with clear hypotheses.

Chapter 2 outlines the study design, detailing participants who contributed to the research, measures used, and the statistical methods used to analyze the data.

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Chapter 3 identifies the results obtained, detailing general relationships between variables, controlled relationships, group differences, multiple parallel mediation, moderation, and additional analyses. It also reports whether the results supported the hypotheses or not

Chapter 4 is a discussion of the research findings and the practical and research-based implications that these findings have, alongside the limitations of the study and its findings.

1.3 Health and Safety Change in New Zealand

A broad overview suggests that health and safety in New Zealand have gone through radical changes throughout recent history. Significant contributions to these changes were the Report of the Independent Taskforce on Workplace Health and Safety (2013) and the introduction of the Health and Safety at Work Act (2015). The report found that New Zealand was performing poorly in workplace safety featuring high numbers of workplace injuries/fatalities, and disasters, such as the Pike River Mine Disaster (Royal Commission on the Pike River Coal Mine Tragedy, 2012). The report suggested that no single component is responsible for the poor performance record in New Zealand; however, it was a collective failure of the components of the occupational safety system compounding to produce poor safety performance. The collective components consisted of confusing and generic regulation, such as multiple legislations that cover health and safety and gaps in the legal parameters which allow no protection of contractors and the responsibility of executives to lapse. Additional factors were an ineffective regulator, poor worker engagement and representation, poor leadership, shortfalls in training, limited ability to participate in health and safety, poor incentives, poor data and reporting, a macho risk culture, the type and size of business challenges (lacking systems,

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education, and resources to conduct health and safety), and specific populations being more at risk (males, minority groups, uneducated, older, and younger workers). From these collective shortfalls in the system, several factors were highlighted that would address and hopefully improve health and safety in this country, such as culture, transparent and unambiguous law, addressing the capacity and capability of individuals to understand and get involved, incentives, information, strong leadership, and worker participation. To achieve this, mass organisational change had to occur alongside legal and regulatory change. In essence, this emphasises the importance of the present study into Health and Safety oriented organisational change.

At the legislative level, the new legislation identifies specific requirements for certain industries and occupations (HSWA, 2015). It has brought about several important changes with implications for organisations (HSWA, 2015). It focuses on proactively identifying and managing hazards and risks for overarching protection of the workplace. It introduces a duties aspect, featuring a new concept called Person Conducting Business or Undertaking (PCBU), created to hold the business entity accountable for the health and safety of individuals within its operations and of the organisation as a whole. The PCBU has a primary duty of care to ensure that health and safety is reasonably practicable. Additional changes include increased due diligence of officers requiring directors, owners, and senior executives to have legal responsibility, and to ensure the PCBU is managing health and safety. Workers must take reasonable care and comply with health and safety regulations and engage with health and safety where reasonably practicable. Worker participation is a critical component of the new legislation as responsibility for health and safety is a crucial component for all individuals involved with the business. There is also a duty for individuals not within the PCBU/Officer or worker category

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including volunteers and any customers/visitors to the workplace, who must take reasonable care for their own safety. Finally, stronger fines and penalties were introduced. These important aspects do not constitute all the changes to the legislation, simply a number of the important ones.

As health and safety changes have and will continue to be rooted deeply in the transforming nature of New Zealand business, we can expect a portion of workers in organisations to have experienced at least some safety change. WorkSafe New Zealand reported that 6 out of 10 employers had made some organisational change to health and safety within their business (Nielsen, 2016).

Some of these changes could consist of the introduction of health and safety committees for organisations with more than 30 employees (General Risk and Workplace Management Regulations, 2016), and appropriate training of workers in regards to safe practices, safety related inductions focusing on what to do in the case of emergencies, how to identify and manage risks, essentially giving the employees the knowledge to work safely. The implementation of new health and safety systems which feature safety plans and procedures, that may detail emergency procedures, or new tools to be utilised in certain events. Organisations may also increase the promotion of worker engagement and participation through health and safety committees or health and safety representatives, regular safety meetings within teams or at the team level, or daily safety catch-ups on new and existing hazards in the work environment. Risk management systems may be implemented by using such tools as a risk and hazard registers with details on how each hazard is managed.

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Essentially, there are many macro and micro level changes that organisations could have implemented as a result of new legislation, or to reduce accident rates, improve their culture/climate, or contribute to the advancement of safer New Zealand workplaces. To understand how employees have appraised these changes, perceptions of health and safety within New Zealand must be explored.

WorkSafe (2014) indicated with their segmentation model that Perceptions of health and safety within New Zealand have historically been varied, with some negative and misinformed as well as some positive and informed perceptions. The model identifies five typologies of safety attitudes. Hidden attitudes are where workers are driven by ignorance, where they often don't understand health and safety or don't have the capacity to. Resisting attitudes are anti authority based and individuals reject being told or instructed how to work safely. There are also tick the box immunity attitudes, where individuals are driven to comply only due to fear of reprisal or prosecution. Pick and mix pragmatists are where self-confidence and common sense is a driver to achieving safer outcomes, they apply some safety rules well, however view some rules as laborious. Finally, Proactive guardians are driven by the need to proactively protect themselves and others, actively embracing safety as key to profit and organisational effectiveness. Fundamentally, some attributes of these typologies align with anecdotal experiences of safety attitudes that created the rationale for the present study.

Recent local organisational research, commissioned by WorkSafe New Zealand has identified a trend of generally improving attitudes and perceptions of health and safety at work (Nielsen, 2015; Nielsen, 2016; Nielsen, 2018). These attitudes and perceptions exist at all levels, such as beliefs that employers value health and safety, perceptions that employees actively

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participate in safety initiatives, increased recognition of the damage a poor health and safety record can have for an organisation and better access to information concerning safety practices. The improving attitudes towards health and safety should reflect on how individuals respond to safety-oriented change; however, we seek to identify the factors that may relate to these responses. Next, organisational change as a general concept is introduced in order to understand how it relates to responses to change.

1.4 Organisational Change

The topic of organisational change is vast and littered with various theories, interpretations of change, and recommendations of the best way to implement a change. To understand organisational change and its relevance to the present study, a definition is needed, followed by details of nature, categories, nuances, and characteristics relevant to the study.

Organisational change is defined as any change that occurs within an organisational context to achieve a desired outcome (Dunphy & Stace, 1993; Quattrone & Hopper, 2001; Tsoukas & Chia, 2002). It can take many forms, such as new process implementation, restructuring, technology implementation, policy implementation, culture shift, or even re-organisation of the office layout. It can be influenced by many factors, be implemented by varying agents, and exist in many different organisational contexts (Markus & Robey, 1988; Myers, Hulks, & Wiggins, 2012; Quattrone & Hopper, 2001).

Change typologies have classified the categories and emphasised the nuances of change and how they contribute to its success or failure while avoiding the subjective and individualistic experiences of change. Several models articulate the relevance of size or scale of change,

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intensity, positioning, and frequency. The Punctuated Equilibrium model identifies the nature of change, exploring attributes such as frequency, intensity, and scale through the conceptualisation of change types (Nadler & Tushman, 1989; Tushman & Romanelli, 1985). The model identified that functional businesses go through long periods of stability with the odd short period of fundamental change, conceptualised as divergent change. The model also conceptualised convergent change as change that is incremental, featuring small continuous changes throughout an organisation's existence. Importantly, the underlying ideas of scale and frequency of change were identified as being significant attributes of organisational change, with large episodic style changes, having more success than small incremental changes (Gersick, 1991; Nadler & Tushman, 1989). There is an interesting contrast with dynamic change models which indicate that continuous change is more successful than episodic change (Grundy, 1997; Nelson, 2003; Weick & Quinn, 1999). Continuous change features micro level changes, but at a constant rate throughout a business lifespan, whereas episodic changes are large changes that occur intermittently. Additionally, the Porras and Robertson model expands further on the nature of change by examining change in a more applied conceptualisation as organisational development, and organisational transformation. Organisational transformation features similar aspects to episodic change, and organisational development is similar to continuous change concerning scale, frequency, and impact (Porras & Robertson, 1992; Porras & Silvers, 1991).

While the models and typologies may explain the conceptual nature of change and suggest it is objective and straight forward (Grundy, 1997; Nadler & Tushman, 1989; Nelson, 2003; Porras, & Robertson, 1992; Porras, & Silvers, 1991; Weick & Quinn, 1999), we argue that change is not complete as a concept without consideration of the subjective experiences or

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cognitive processes which lead to cognitive and behavioural change. We argue that specific characteristics of organisational change may aid in explaining responses to change, specifically cognitive appraisal. We suggest Perceived Scale of change and Perceived Favourableness of change outcomes may relate to appraisal and could be explained by a demands and resources framework (Demerouti, Bakker, Nachreiner, & Schaufeli, 2001; Hobfoll, 1989; Lazarus & Folkman, 1984).

1.5 Perceived Scale of Change.

Organisational change can be categorised due to its size, content, speed, and context, with such labels as episodic, convergent, divergent, continuous, and transformational change (Levy, 1986; Nadler & Tushman, 1989; Nelson, 2003; Porras, & Robertson, 1992; Porras, & Silvers, 1991; Watzlawick, Weakland, & Fisch, 1974; Weick & Quinn, 1999). We cannot as easily categorise individual's perceptions of change, as employees may subjectively perceive the scale of change entirely differently than the content, size, and context imply. This introduces one of the key predictor variables in our model: Perceived scale of change, which is the perceived size and impact of the change from an individual's perspective (Fedor, Caldwell, & Herold, 2006; Smollan, 2009).

Perceived scale of change articulates individuals' tendencies to focus on how change affects their jobs and what personal implications the change has for them (Caldwell, Herold, & Fedor, 2004; Fedor, Caldwell, & Herold, 2006). Accordingly, the more significant the personal ramifications of change are, or the higher the perceived scale of change, the higher the risk of an adverse response to change (Mossholder, Settoon, Armenakis, & Harris, 2000; Smollan, 2009).

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Additionally, the size and impact of change have been linked primarily to concerns for the individual themselves, e.g. employment uncertainty. The job they occupy, e.g. workload increases. Also, the work unit they work within, e.g. changes in work unit procedures (Lau & Woodman, 1995; Weber & Manning, 2001).

Transformational change has been linked to greater perceptions of size and impact of change, and consequently different responses (Rafferty & Griffin, 2006). Levy (1986) determined that transformational change is any large change in the core aspects of a business or system, and incremental change is any small consistent change, such as changes from one type of PPE gear to another. Perceptions of the impact of change which was transformational in nature were related to turnover intentions, essentially a negative response to change (Rafferty & Griffin, 2006). If a change is perceived as large or transformational in nature, and it affects a core aspect close to the individual and often has not been experienced before, then the individual will likely respond negatively.

Novelty or unusual characteristics of a change may also contribute to large scale perceptions. Rafferty and Griffin (2006) identified that change may be perceived as personally impacting and large if it has not been experienced before. Essentially, any change not experienced before or which features unusual characteristics could likely be appraised as large scale, affecting core aspects of the organisation or the person's job. Large scale or radical change may be novel and create uncertainty, and with increased uncertainty, perceptions of scale of change should generally increase (Fink & Holden, 2002).

It is interesting to contrast health and safety change with other change like mergers and acquisitions. There is a well-defined trend that these are associated as large scale and typically

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align with threat appraisals due to the potential job losses and the ambiguities that employees face (Biggane, Allen, Amis, Fugate, & Steinbauer, 2017). Health and safety change holds the protection and wellbeing of employees and the organisation at its core. However, the Perceived Scale of the changes should relate to threat appraisal no matter the context or goal of the change if the change features novel attributes, which challenges pre-existing attitudes and mindsets towards health and safety and procedures already in place.

The Perceived Scale of change has been depicted as a critical factor in determining the success of organisational change (Dunphy & Stace, 1993). However, Perceived Scale of change is also associated with general responses to change as demonstrated where change recipients adopt small perceptions of an IT change leading to positive responses (Collerette, Legris & Manghi, 2006), and also positive emotions (Smollan, 2009). Perceptions of change which are larger in scale will likely produce negative responses such as resistance, turnover intentions (Biggane, Allen, Amis, Fugate, & Steinbauer, 2017), or lower levels of organisational commitment (Bovey & Hede, 2001; Fedor et al., 2006; Rafferty & Griffin, 2006; Mossholder, Settoon, Armenakis, & Harris, 2000; Smollan, 2009). Change perceived to be smaller or lesser in scale has been associated with lower levels of resistance (Brown & Harvey, 2011), and generally more positive attitudes towards the change (Ujhelyi, Barizsné, & Kun, 2015). We identify that this characteristic of change is likely to be a determinant of cognitive appraisal

1.6 Perceived Favourableness of Change Outcomes

Perceived Favourableness of change outcomes is another key characteristic of change which is central to its success, although not covered in the typologies of change as overtly as other characteristics like scale. Perceived Favourableness of change outcomes is the level to

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which employees see themselves as having benefited from the change (Fedor et al., 2006). It is an implicit feature of change theories, such as divergent change vs. convergent change, (Nadler & Tushman, 1989; Tushman & Romanelli, 1985), and transformational change vs. incremental change, as the nature of the change is not complete without an outcome. Fundamentally, change outcomes are highly subjective in terms of favourableness. From an organisational or managerial perspective, favourable change outcomes could constitute lower costs, legal compliance, efficiency, and overall organisational competitive advantage. However, from an employee or individual perspective, favourable change outcomes could constitute job security, workload, physical safety, time efficiency, and protection from psychosocial risk factors.

Health and Safety change should hold the best interests of the staff and the organisation at hand; however, this may not translate to the changes being seen as favourable. This presents the second predictor variable of interest in our model, Perceived Favorableness of change outcomes, which considers the subjective nature of individual perceptions of change outcomes and whether it is perceived as favourable to the individual (Fedor et al., 2006; Herold, Fedor, & Caldwell, 2007; Smollan, 2009). Favourableness of change is different from challenge appraisal, as challenge appraisal focuses on the potential or anticipated gain, growth, or loss from a situation, whereas favourableness draws on valence theory, intrinsic and extrinsic motivators, and can be explained by the conservation of resources model as it focuses on the desirable aspects of the outcomes experienced.

In relation to general considerations over what can make change favourable or unfavourable, research has demonstrated some factors, such as undesired changes in job roles, changes in work relationships, changes in facilities, changes to careers (Kohler, Munz, &

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Grawitch, 2006) increased workload, role conflict, job insecurity (Kinnunen, Mauno, Nätti, & Happonen, 2000; Spector & Fox, 2002; Vakola & Petrou, 2018), and change related uncertainty (Cullen, Edwards, Casper, & Gue, 2014). Conversely, change can also feature positive implications, such as personal development, economic benefits (Soenen & Melkonian, 2017; Vakola & Petrou, 2018), process improvement, safer workplaces, innovation, building trust, and career advancement opportunities (Kruglanski, Pierro, Higgins, & Capozza, 2007). These positive or desired role changes can produce positive attitudes and general support for change (Bovey & Hede, 2001; Vakola, Tsaousis, & Nikolaou, 2004) and favourable changes, in general, are found to relate to commitment (Choi, 2011; Fedor et al., 2006; Soenen & Melkonian, 2017). These change implications or outcomes may explicitly be positive or negative; however, the effects could also be multifaceted and result in varying responses.

The link between safety-related changes and positive outcomes is lightly researched; however, research on effective health and safety programmes within an organisation has suggested several outcomes. An effective health and safety programme has been linked to improvements in job satisfaction, reductions in sick leave, reductions in employee turnover, and reductions in workplace accidents according to the Canadian Centre for Occupational Health and Safety (CCOHS, 2017). Although an already established health and safety programme is different to a health and safety change, the outcomes of an improving or existing health and safety programme would likely be similar to outcomes of safety change.

Outcome valence can aid in explaining why specific implications or outcomes of change may be more or less favourable. Valence is the positive or negative psychological value assigned to an outcome of a situation and the values can be articulated as the importance, desirability,

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attractiveness, and satisfaction of the outcome (Van Eerde & Thierry, 1996; Vroom, 1964).

Valence of outcomes may pose an important role in determining responses (Armenakis, Bernerth, Pitts, & Walker, 2007). Outcome valence has featured as part of an example a change research; an organisation introduced six sigma total quality management and found that employee's positive perceptions of outcomes resulted in positive responses, such as increased participation in change (Buch & Tolentino, 2006). Employees viewed profits from an efficient organisation to equate to long term viability and job security. Fundamentally, valence prescribes that individuals will associate with the psychological value of an outcome. However, valence theory does have its limitations in explaining responses to organisational events, as it is only accurate in measuring logical and hedonistic behaviours (Antoni, 2004), essentially the theory of valence does not account for irrational behaviour, or novel situations, which commonly are associated with change. Essentially the valence of a change outcome could be offset by the stressful nature of the change process itself.

Smollan (2009) identified value in the intrinsic and extrinsic outcomes of change and why they were relevant in explaining favourableness of change perceptions and responses. Even though intrinsic and extrinsic traits are not being measured they play a crucial role in explaining the Perceived Favourableness of change outcomes. Lester and Kickul (2001) determined that intrinsic outcomes are work environment related factors, such as supportive colleagues, climate, managers, participation in decision making, autonomy, and control; we can assume that perceived safety after a change will be an intrinsic motivator. In contrast, extrinsic outcomes are overt motivators, such as remuneration and job benefits or even safety incentives. It has been collectively identified that intrinsic motivators, such as responsibility and job control are more

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strongly related to positive responses in organisations, such as commitment, involvement, citizenship, job performance, and satisfaction (Buch & Tolentino, 2006; Lester & Kickul, 2001; Tremblay, Blanchard, Taylor, Pelletier, & Villeneuve, 2009). We can expect a trend towards intrinsic outcomes with safety change, such as perceived safety, safety climate, supportive managers, autonomy, and authority over individuals own safety, as health and safety change may not instil much extrinsic value, except for physical safety and potentially safety incentives. It is clear that when outcomes are viewed in terms of their motivational value, either intrinsic or extrinsic, and whether these are fair or unfair, responses follow suit (Kickul, Lester, & Finkl, 2002), and essentially could provide a basis for favourable outcomes of change and its relationship with an appraisal.

Perceptions of the favourableness of change outcomes elicit emotional responses, such as happiness, relief, and pride (Smollan, 2009; Smollan & Matheny, 2005). While perceptions of, unfavourable change outcomes can elicit such emotional responses as fear for potential job loss, anger at increased workload, and an aversion to the way other staff members may have been treated as a result of the change. Smollan (2009) articulated that change outcomes, if seen as favourable or positive, can act as a mediator between change and cognitive responses contributing to increasing the likelihood of a positive response, such as a commitment to change (Fedor, Caldwell, & Herold, 2006) and whether employees choose to productively and actively engage with the change and its outcomes (Dibella, 2007). The Perceived Favourableness of change outcomes, therefore, may play a role in predicting the cognitive appraisal of change

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1.7 Cognitive Appraisal as a Response Process

Cognitive appraisal is the process of identifying a situation and its various dimensions and articulating what these mean for wellbeing (Lazarus & Folkman, 1984; Pahkin et al., 2014; Tomaka, Blascovich, Kelsey, & Leitten, 1993). It is one part of the transactional model of stress, an approach to explaining experiences of everyday situations. Coping is also an important aspect of the model (Lazarus & Folkman, 1984); however, it remains outside of the aims of this research but still must be defined as it holds relevance to behaviours which occur post cognitive appraisal. The concept of coping is defined as the behavioural and cognitive efforts selected to address and deal with the internal and external demands of a situation (Lazarus & Folkman, 1984). Critically, we now focus on addressing the process of cognitive appraisal.

Cognitive appraisals feature two main processes. The first is primary appraisal: the assessment of a situation regarding hazard and risk. Fundamentally, it is made up of four different appraisal types (Lazarus & Folkman, 1984). The first is benign positive, in which the outcome of a situation is interpreted as being beneficial to the individual's well-being, and positive emotions are elicited. The other primary appraisal types are oriented around stress. Harm/loss appraisal is the perceived negative impact or harm inflicted on an individual physically or psychologically by a situation. Threat Appraisal is the perceived harm or potential loss to an individual which has not yet occurred and prompts emotions, such as anxiety and fear. Challenge Appraisal is the perception of anticipated growth and/or gains which an individual could experience from the situation and features positive emotions, such as excitement. While similar to benign positive appraisal, challenge appraisals focus on the anticipation of gains and future outcomes of the situation (Lazarus & Folkman, 1984).

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The significance of Threat Appraisal is that it allows an individual to plan or anticipate how they might cope in the future through certain cognitive, behavioural, or emotional responses, working through the threatening situation to minimise harm and loss. Conversely, Challenge Appraisal similarly permits individuals to plan and understand how they may respond to a situation to maximise gain or growth; it focuses more on adaptation (Lazarus & Folkman, 1984). Additionally, these appraisal types do not operate on the same continuum, they are independent, but can be related. Essentially, individuals exposed to becoming a safety representative as part of the requirements of the HSWA (2015) could appraise the change as a challenge due to the potential benefits or learning new skills, and information; however, they could at the same time appraise the change as a threat, as the change will demand the individuals time, and impose a fear of not performing to a set standard.

The second main process involved in cognitive appraisal is secondary appraisal. This is the self-assessment or perception of an individual's resources and capability to cope with the situation at hand (Lazarus & Folkman, 1984; Tomaka et al., 1993; Skinner & Brewer, 2002; Tomaka, Blascovich, Kibler, & Ernst, 1997). Secondary appraisal is based on outcome expectancies, which are the evaluation that a certain response will lead to specific results (Bandura, 1977; Maddux, Sherer, & Rogers, 1982), and efficacy expectancies, which are the process by which an individual believes they have the capability to reach the desired behaviour and goal or objective through their chosen action (Bandura, 1982; Maddux, Sherer, & Rogers, 1982).

Appraisal processes have been linked to personal and situational factors (Lazarus & Folkman, 1984). Situational factors constitute attributes of the situation which could relate to

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how an individual may respond. These attributes are characteristics of a situation, such as novelty, uncertainty, size, impact, scale, desirability, favourableness, imminence, ambiguity (lack of information or direction), among others. Personal factors are factors relevant to an individual's wellbeing which can shape the person's understanding of an event and provide a basis for assessments of possible outcomes. One example is what Lazarus and Folkman (1984), termed commitment, which denotes the individuals' drive and motivation to achieve the desired outcome.

A central aspect of these antecedents of appraisal is they are not independent they are highly interdependent on each other. Situational factors relate to personal factors, for example the novelty of change may be overcome by the individual's beliefs in their own ability and self-efficacy to handle the change process. This interdependence between situational and personal factors contributes to the idea that appraisals hinge on the balance between demands and resources which is to be discussed shortly (Lazarus, 1991; Lazarus & Folkman, 1984).

There are criticisms of cognitive appraisal. Parkinson (1997) argued that appraisal is unable to account for unusual, involuntary or maladaptive responses. However, Lazarus (1991) articulated that appraisal at the same time as being a high level conscious cognitive process; it can also be intuitive and unconscious which can cause confusion between appraisal and results in irrational or maladaptive responses (Roseman & Smith, 2001). Also, there have been suggestions that appraisal is based on the individual only, not environmental factors (Hobfoll, 1989). However, Lazarus and Folkman (1984) refute this criticism articulating that appraisal is based on the complex interplay of situational factors with the individual's personal factors (Lazarus, 1991).

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Ultimately, there are a number of different theories besides the transactional appraisal-based theory, such as shaping and framing (Bean & Hamilton, 2006; Weber & Manning, 2001; Weick & Quinn, 1999), arousal and activation (Duffy, 1962; Ekman, Levenson, & Friesen, 1983), and dynamic stress based-theories (Mack, Nelson, & Quick, 1998) which seek to address stress and responses in change situations. However, these approaches do not effectively articulate the subjective and objective individual experiences that are inherent in any situation (Lazarus & Folkman, 1984), especially organisational change (Rafferty & Griffin, 2006), and within most occupational contexts (Ashford, 1988; Vakola & Nikolaou, 2005). Cognitive appraisal helps us to understand the differences in subjective interpretations and perceptions of a situation or in this context of health and safety change. Lazarus and Folkman (1984) identified that stress is like a compass; it allows individuals to assess how they are going to respond to a situation. Appraisal allows an understanding to be developed as to how an individual might react or respond cognitively, emotionally, and behaviourally (Bareil, Savoie, & Meunier, 2007; Fugate, Kinicki, & Prussia, 2008; Fugate, Prussia, & Kinicki, 2012; Smollan, 2009).

1.8 Job Demands and Resources

A key theoretical idea suggests that appraisal is hinged on the interdependence and balance between perceptions of demands and resources (Hobfoll, 1989; Lazarus & Folkman, 1984). This idea stipulates that an integrated approach utilising the Job Demand Resources (JD-R) model (Demerouti, Bakker, Nachreiner, & Schaufeli, 2001) and the Conservation of Resources (COR) model (Hobfoll, 1989), which can explain or aid in understanding the

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cognitive appraisal of organisational change. An approach using a singular model leaves gaps and is not robust in explaining the transactional nature of the appraisal process.

Job demands are the physical, social, or organisational factors of a job or situation which require psychological or physical effort to deal with (Demerouti et al., 2001). They compare well with situational factors related to appraisal (Lazarus & Folkman, 1984), and can exist as perceptions of ambiguity, workload, favourableness, uncertainty, imminence, scale, and other factors of the change itself. Previous examples of change-oriented demand factors, such as change related fairness (Fugate et al., 2012) or justice (Bernerth, Armenakis, Feild, & Walker, 2007; Cobb, Folger, & Wooten, 1995) have been explored, and they have highlighted how the change can impose demands on individuals and elicit varying responses. These responses ranged from appraisal (Fugate et al., 2012), and anxiety (Paterson & Cary, 2002) to support, acceptance, trust, and commitment (Cobb, Folger, & Wooten, 1995; Mishra & Spreitzer, 1998). In essence, the perceived demands of change can be represented as Perceived Favourableness and Perceived Scale and could have implications for appraisal and other responses.

Job resources are the physical, psychological, social, and organisational aspects of a job which may be central in countering job demands, achieving work-related goals, and also in acting as a catalyst for personal development (Xanthopoulou, Bakker, Demerouti, & Schaufeli, 2007; Hobfoll, 1989). The most prominent resources which can be assessed and are stable across situations are organisational or job resources such as job control, climate, participation in decision making, task variety, change management support, and social support colleagues, managers, and family (Cohen & Wills, 1985; Fugate & Soenen, 2018; Schaufeli, & Bakker, 2004; Schaufeli, & Taris, 2014; Xanthopoulou, Bakker, Demerouti, & Schaufeli, 2007).

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Additional resources could include condition-based resources, such as tenure in a job, and seniority within an organisation, and personal resources, such as skills, previous experience with organisational change, positive orientation, self-efficacy, positive attitudes towards change, and perceived control over change (Cullen-Lester, Webster, Edwards, & Braddy, 2018; Hobfoll, 1989; Fugate, Prussia, & Kinicki, 2012; Rafferty & Restubog, 2017; Stensaker & Meyer, 2011). Resources also share similarities with personal factors identified as influencing appraisal, as they can aid in shaping, understanding, and responding to the demands or situational factors of an event.

Essentially, the idea that appraisal is balanced on the perceived demands and resources available in a situation, can be explained by the underpinnings of the Conservation of Resources (COR) model (Hobfoll, 1989). The COR model identifies that people strive to protect, retain, and build their resources while environmental situations could contribute to a potential or actual loss of these resources, or an opportunity to build resources (Hobfoll, 1989; Hobfoll, 2001). People assess their potential resource loss and probability of success or failure as part of appraisal. This theory does provide some insight into why resources matter in the appraisal process, it articulates how situations have detrimental or additive effects to individuals' wellbeing and state of resources, and how this dictates responses. However, a focus on resources does not provide the whole picture as to what may relate to appraisal.

Our criticism of the model is that the unidirectional nature of the COR model between resources and a reduction of resources does not recognise the complex nature of situational demands and how they impact individual responses to organisational events (Demerouti et al., 2001). Lazarus (1991) argued that resource-based appraisal is actually part of a holistic appraisal

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process which contributes to an overall appraisal response to life events and organisational events.

The JD-R model acknowledged and built on existing wellbeing and stress models, such as Cognitive Appraisal (Lazarus & Folkman, 1984), Conservation of Resources (Hobfoll, 1989), and the Demand-Control Model (Hockey, 1997; Karasek, 1979). The JD-R model conceptualises that job demands and job resources are the central determinant of wellbeing and affective responses, such as commitment (Demerouti et al., 2001). On the surface this model is simplistic and has been criticised as it does not consider the appraisal and coping mechanisms associated with organisational demands (Crawford, LePine, & Rich, 2010). However, importantly the model does address the significance of organisational or job demands relating to responses.

The key idea that appraisals hinge on assessments of the balance between the perceived demands of the environment and the resources available seems intuitive (Demerouti et al., 2001; Lazarus & Folkman, 1984; Lazarus, 1991). However, it has also faced criticism such as that it is overly complex and tautological, as it does not separate demands from coping capabilities, and for its emphasis on perceptions, and not so much on the objective environment (Hobfoll, 1989).

Evidence suggests the idea that appraisal is hinged on the balance between demands and resources may extend to an association with behavioural responses as demonstrated by existing links between appraisal and change related behaviours (Fugate & Soenen, 2018), challenging job demands and depletion of resources relating to disengagement or burnout (Demerouti et al., 2001), and appraisal and coping behaviors (Goh, Sawang, & Oei, 2010). Although it is not part of the present study it is necessary to highlight some examples of these specific responses or what could be termed as coping responses to organisational change, so to articulate how

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cognitive appraisal and the balance between demands and resources can act as a precursor or prior cognitive response predicated other emotional, and behavioural responses (Bareil, Savoie, & Meunier, 2007; Fugate & Soenen, 2018; Lazarus & Folkman, 1984; Smollan, 2006). The integrated approach aids in understanding responses and how they may stem from appraisal. Fundamentally, as individuals are exposed to a change, they conduct a primary appraisal of the change demands to assess how they might respond due to potential resource loss or gain, they also conduct a secondary appraisal which assesses the resources available to produce a response or coping behaviour/effort (Demerouti et al., 2001; Hobfoll, 1989; Lazarus & Folkman, 1984). Responses stemming from appraisal may be dependent on the whole appraisal process and may hinge on the fact that the individual may not have the appropriate resources available to deal with the demands of the change, so, therefore, appraise the situation as a threat, and coping responses such as resistance to change may follow.

Fugate and Soenen (2018) articulated specific links between cognitive appraisal and to two types of responses to change. These responses were positive and took the form of compliance and championing, with compliance being a more passive positive response and having a tendency to be quite apathetic in nature. Alternatively, championing was the more positive of two and consisted of more general motivation and internal commitment to the change and its goals. Championing was predicted by challenge appraisal (Fugate et al., 2018). Interestingly, linking compliant and championing responses to threat appraisals or challenge appraisals and focusing on the outcomes of change implicitly identifies the outcomes as a possible demand (Demerouti et al., 2001). However, the study did not explicitly acknowledge that resources may relate to appraisals or responses.

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A study focusing on a specific change in the nursing environment demonstrated how demands and resources associated with the change could relate to affective outcomes, and perceived gains and losses for individuals (Bartunek, Rousseau, Rudolph, & Depalma, 2006). The change was the implementation of shared governance in the workplace, and the researchers identified relationships between participation in the change and how nurses respond emotionally, with pleasant emotions, or activation based emotions. This example emphasizes how a balance between demands of the situation, such as uncertainty, and the resources available, such as participation can dictate and relate to forming a response outside of appraisal. Additionally, an appraisal of the potential resource gains of the change (Hobfoll, 1989), such as job control, quality of service, professional development, and positive work relationships, would likely of happened and may have equated to positive responses to the shared governance initiative.

It is apparent that organisational change presents varying subjective experiences for individuals, and as a result this can lead to a variety of responses. Consequently, this reinforces the role cognitive appraisal may play in articulating how people may respond as a result of appraisal determining post hoc behaviours to change. It also emphasizes the relevance of an integrated model in understanding how resources and demands are critical to the appraisal and response process. The idea, that appraisal hinges on the perceived balance between demands and resources, has been useful in explaining other responses to demands. Consequently, when a change is seen to present higher demands than resources that the individual has available to cope with the change, then the individual will likely exhibit a Threat Appraisal. In contrast, if the individual encounters a change where they have the appropriate resources, then they are likely to respond with a Challenge Appraisal, as they will have the appropriate resources to cope with the

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situation. Situational change characteristics, such as Perceived Favourableness of change outcomes and Perceived Scale of change could affect appraisal, while other while factors such as Role type and Safety Climate may be job resources which also aid in explaining individual appraisals of organisational change.

1.9 Perceived Scale of Change in Relation to Appraisal

Appraisal of change may hinge on the Perceived Scale of change as a type of theoretical demand (Demerouti, Bakker, Nachreiner, & Schaufeli, 2001), which may be tied to perceptions of resources available to cope with the varying scale of change (Hobfoll, 1989).

A specific example factor related to perceived scale of change is expected changes in workload, which has been identified as a critical factor in perceptions of change (Webster, Beehr, & Love, 2011). A legislated change, such as the Health and Safety at Work Act (HSAW, 2015), introduces the concept of employee participation. This will have ramifications for the workload of employees, as participation in health and safety-related meetings or planning means some employees may have additional duties to perform. This extra workload requires job resources, such as time and social support, so to appraise the increased workload as a challenge, employees will need to see they have the resources to undertake it (Webster, Beehr, & Love, 2011).

Several mechanisms indicate that Perceived Scale of change may be related to the cognitive appraisal of organisational change. Perceived Scale of the change acts as a demand in the balance between job demands and job resources (Demerouti, et al., 2001) aligning with the idea that appraisal hinges on a balance between the two (Lazarus, 1991; Lazarus & Folkman,

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1984). Additionally, scale of change is associated with other factors of change, such as novelty, size (Lazarus & Folkman, 1984), workload (Webster, Beehr, & Love, 2011), personal impact (Caldwell, Herold, & Fedor, 2004; Fedor, Caldwell, & Herold, 2006), job impact, personal ramifications (Mossholder, Settoon, Armenakis, & Harris, 2000), and work unit impact (Lau & Woodman, 1995; Weber & Manning, 2001). All of which have been identified as associating with responses to change. This leads us to hypothesise the following:

Hypothesis 1a: Larger perceptions of the scale of change will be negatively related to challenge appraisal.

Hypothesis 1b: Larger perceptions of the scale of change will be positively related to threat appraisals.

1.10 Perceived Favourableness of Change Outcomes in Relation to Appraisal

Individuals strive to protect, maintain, and build their resources around and within them when engaging in real life situations (Hobfoll, 1989). Events which hold favourable attributes have the potential to add or contribute to the net growth of an individual's resources. The expected net growth of resources is likely to be related to a positive response, such as challenge appraisal while the possibility of loss of resources from a change, such as loss of job, changes to a job, and loss of routine is likely to be related to negative responses, such as threat appraisals. We can assume that changes with outcomes, such as health and safety change which gives employees more autonomy and decision-making ability to control hazards, reduces risks and accidents, and establishes better health and safety procedures/systems for teams or work units may result in favourable perceptions, ultimately instilling intrinsic value (Buch & Tolentino,

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2006; Kickul et al., 2002) and resource gain and therefore challenge appraisals (Hobfoll, 1989).

This leads us to draw the following hypothesis:

Hypothesis 2: Higher perceptions of favourableness of change outcomes will predict challenge appraisals.

1.11 Organisational Climate

Considering the demands of change and their relevance to cognitive appraisal brings attention to the resources needed to balance out the demands and for an individual to appraise a situation (Shaw, Fields, Thacker, & Fisher, 1993). Organisational climate is the shared perceptions of a set of attributes within a specific organisation, or sub-groups/ business units, which are influenced by the way an organisation may interact with its clients, employees, or society, and it can be conceptualised as the feelings, attitudes, and expectations shared by employees within a work setting (Hellriegel & Slocum, 1974; Kruglanski, Pierro, Higgins, & Capozza, 2007). It can aid an organisation's employees to understand, perceive, and respond to organisational change in a framework, which contributes to successful change (Schneider, Brief, & Guzzo, 1996). Importantly a separate aspect of organisational climate is Safety Climate, defined as the shared perceptions which employees have over the organisations' safety-related work environment, practices, policies, and overall priority the workplace puts on health and safety (Schwatka, Hecker, & Goldenhar, 2016; Zohar, 1980).

Organisational climate types, such as positive psychological climates and participative climates, can relate to how individuals appraise change, predicting positive change appraisals and employee adjustment to change (Martin, Jones, & Callan, 2005; Paškvan, Kubicek, Prem, &

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Korunka, 2016). These climates produce or contain job resources, such as supervisor support, leadership vision, employee relationships, good client orientation, control, and participation in decision making, which correlate with challenge appraisals (Martin et al., 2005; Paškvan et al., 2016). Paškvan and colleagues proposed that positive climates act as a resource for allowing an individual to cope with change.

Both general organisational climate and also specific organisational climate (Martin, Jones, & Callan, 2005; Paškvan et al., 2016) have an important role in predicting how individuals respond to organisational change. Climate can act as a critical job resource for individuals to draw on in appraising the demands of organisational change. It also introduces our mediating variable of focus, safety climate as this is one critical factor linked to health and safety-oriented behaviours.

1.12 Safety Climate as a Mediator

Safety climate may play a mediating role in the appraisal of health and safety change, as it plays a crucial role in predicting the health and safety performance of organisations (DeJoy, Schaffer, Wilson, Vandenberg, & Butts, 2004; Griffin & Neal, 2002) and climate in general seems to act as a resource contributing to responses (Bakker, Hakanen, Demerouti, & Xanthopoulou, 2007). Schneider and Bowen (1985) emphasised that more focused climate measures or conceptualisations of climate, such as safety climate, produce much stronger associations with organisational outcomes. It is prudent that we look at specific organisational change, such as safety-related change, alongside specific safety indicators, such as safety climate, as it could provide a clearer image of safety climates role in the appraisal of safety-related change (Schneider & Bowen, 1985). We discuss three theoretical mechanisms explaining

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the relevance of safety climate in predicting safety behaviours associated with change, and also a counter-argument explaining why safety climate may not matter.

Firstly, safety climates are central to organisational outcomes involving health and safety related change and its relationship with safety-related behaviors and performance (Casey, Neal, Griffin, & Harrison, 2017; Christian, Bradley, Wallace, Burke, & Spears, 2009; Clarke & Ward, 2006; Giffin & Neal, 2002; Mearns, Whitaker, & Flin, 2003). A meta-analysis identified a relationship between perceptions of work safety being valued/prioritised and the organisation's safety performance (Christian et al., 2009). Essentially, if safety is a priority at work, employees respond by engaging in safety-related behaviours, and consequently improving and contributing to organisations safety performance. Furthermore, there may be a positive association between perceptions of safety climate and responding to or acting on safety change (Christian et al., 2009). Safety climates relate to safety motivation and safety knowledge which are positively associated with safety performance and safety outcomes on an individual and organisational level (Griffin & Neal, 2002). Clarke (2006) further emphasised the relationship between safety climates and safety behaviours by identifying that safety participation can align with organisational citizenship behaviours, equating to actions like going the extra mile to ensure safety, and overall commitment to safety. Safety climate was more strongly related to safety participation than compliance (Clarke, 2006). Consequently, safety climate can produce safety citizenship behaviours that relate to initiating safety change, such as in Hofmann et al. (2003).

The second mechanism is through personal factors. Safety climate can impact on an individual's commitment to future safety within an organisation. Essentially a strong positive safety climate may produce a high level of commitment to good safety performance, and a

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positive appraisal of a health and safety related change. Also, climate could impact the beliefs about change, which can shape the understanding of change in individual experiences. For example, a good safety climate which values safety and improvement may relate to an individual's beliefs that safety change is a good thing and may relate to a challenge appraisal (Lazarus & Folkman, 1984). Additionally, safety climate could shape cue sensitivity: essentially in a good safety climate, safety change may not relate to threat appraisals, as the gains of such a change are known and committed to. Employees may respond positively to change, demonstrating their commitment to safety, as it is important to the individual in reducing future harm to themselves (Lazarus & Folkman, p. 70-71).

The third mechanism aligns with the integrated framework, where safety climate acts as a resource for individuals to utilise to cope with the demands of a safety-related change (Demerouti et al., 2001). Safety climate could relate to an individual's orientation and understanding of safety change, instilling safety values, safety orientation, and commitment to organisational safety and consequently acting as a resource prompting positive responses.

A counter argument exists in explaining safety climate as a trait which is not stable enough to affect how individuals respond to change. Essentially, safety climate is an emergent aspect of health and safety related change in organisations and is only a small part of organisational climate as a whole (Neal, Griffin & Hart, 2000). It also is very easily developed, and adaptable, and therefore may not be an inherent and stable trait within organisations, unlike organisational climate or organisational culture, which evidence suggests are much more ingrained psychological concepts within organisations (Moran & Volkwein, 1992). Research outside of organisational change does support this counterargument and has found safety climate

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not to matter in relation to safety performance, specifically focusing on behaviors associated with noise control and wearing hearing protection devices in noisy working environments (Gardner, Laird, Dickinson, Legg, McBride, & McLaren, 2014).

Due to the evidence that good perceptions of safety climates predict safety behaviours and safety performance (Christian et al., 2009; Clarke, 2006) and safety citizenship behaviours, such as initiating safety change (Hofmann et al., 2003), it is reasonable to assume that good perceptions of safety climate may also predict the appraisal of safety change. Safety climate could act as a resource aiding in providing knowledge and positive orientation towards safety change, contributing to positive appraisals. The evidence of a link between safety climates and safety behaviours, specifically those related to organisational change, prompts the following hypotheses:

Hypothesis 3a: Safety Climate will mediate the relationship between Perceived Favourableness of change and Threat Appraisal.

Hypothesis 3b: Safety Climate will mediate the relationship between Perceived Favourableness of change and Challenge Appraisal.

Hypothesis 3c: Safety Climate will mediate the relationship between Perceived Personal Scale of change and Challenge Appraisal.

Hypothesis 3d: Safety Climate will mediate the relationship between Perceived Personal Scale of change and Threat Appraisal.

Hypothesis 3e: Safety Climate will mediate the relationship between Perceived Work Unit Scale of change and Threat Appraisal.

Hypothesis 3f: Safety Climate will mediate the relationship between Perceived Work Unit Scale of change and Challenge Appraisal.

1.13 Role Type as a Moderator

Role type within an organisation can dictate the resources an individual may have available to them to meet the demands of the situation, and therefore may result in different

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responses to change (Oreg, Vakola, & Armenakis, 2011). We identify Management and Non-management as two separate role types. Managers will have better access to resources, so should appraise change more positively. Resources specific to the manager's role, such as seniority, tenure, and knowledge gained by experience may prompt different appraisals (Jones, Watson, Hobman, Bordia, Gallois, & Callan, 2008; Hobfoll, 1989; Hobfoll, 2001). Additionally, job resources, such as access to information (Cunningham et al., 2002; Covin & Kilmann, 1990; Haugh & Laschinger, 1996; Luthans & Sommer, 1999; Wanberg & Banas, 2000), autonomy, participation, and job control can also play an important part in how individuals cope with job demands (Demerouti et al., 2001; Xanthopoulou, Bakker, Demerouti, & Schaufeli, 2007; Folkman, 1984). In a typical hierarchical structure, management will have more access to information surrounding change and essentially will be more involved in the decision process (Luthans & Sommer, 1999). Evidence suggests that roles with job resources, such as decision making, information, learning, and psychologically demanding characteristics may appraise change differently to more passive roles; management roles are more likely to feature these characteristics than non-management roles (Cunningham et al., 2002). Weber and Manning (2001) identified that responses in the form of sense making differed significantly between management and non-management due to hierarchy dictating access to information.

Ndlouvu and Parumasur (2005) found that there were significant differences in individuals who assumed different job categories, such as top management, middle management, and lower level employees, especially in their perceptions of how a transformational change might affect them, and how this affects commitment, and trust. However, the research did not specify which job category assumed the most variance, just in general that job category created

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variance. Conflicting evidence suggests that managers may experience more negative perceptions about the impact of change, as during times of change they find workload increases (Thornhall & Saunders, 1998). This is an interesting contrast as the specific change that the study focused on, was transformational in nature and large scale.

Finally, a local piece of research has distinguished a mismatch of perceptions of health and safety at work between employees and employers (Nielsen, 2015). Incidentally, employees' perceived health and safety less positively than did employers in the same context. This, although not specifically change orientated, does demonstrate a clear trend in perceptions of health and safety and will most likely occur in two subcategories of management vs non-management and their perceptions and appraisals of health and safety change.

Kanter, Stein, and Jick, (1992) articulated an argument simply by identifying that change recipients are more likely to face greater threat than managers or change strategists during or after change, as they are most likely more affected, which may be due to managers having better access to critical resources. Due to the evidence suggesting job resources are aligned with management positions producing positive responses to change compared to non-management counterparts it allows us to draw the following hypothesis:

Hypothesis 4: Role type moderates the relationship between Perceived favourableness of change outcomes and Cognitive Appraisal.

1.14 Conceptual Model

In summary, this study has proposed that cognitive appraisal hinges on the balance between perceived demands and resources and may explain how Perceived Scale of change and

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Perceived Favourableness of change outcomes predict Threat and Challenge Appraisal.

Additionally, we expect that the effect these factors have on cognitive appraisal may be offset either by the mediating variable of safety climate and/or the moderating variable of role type, and these resource-based factors may indirectly or directly relate to threat and challenge appraisals.

The conceptual model is expressed in Figure 1.1.

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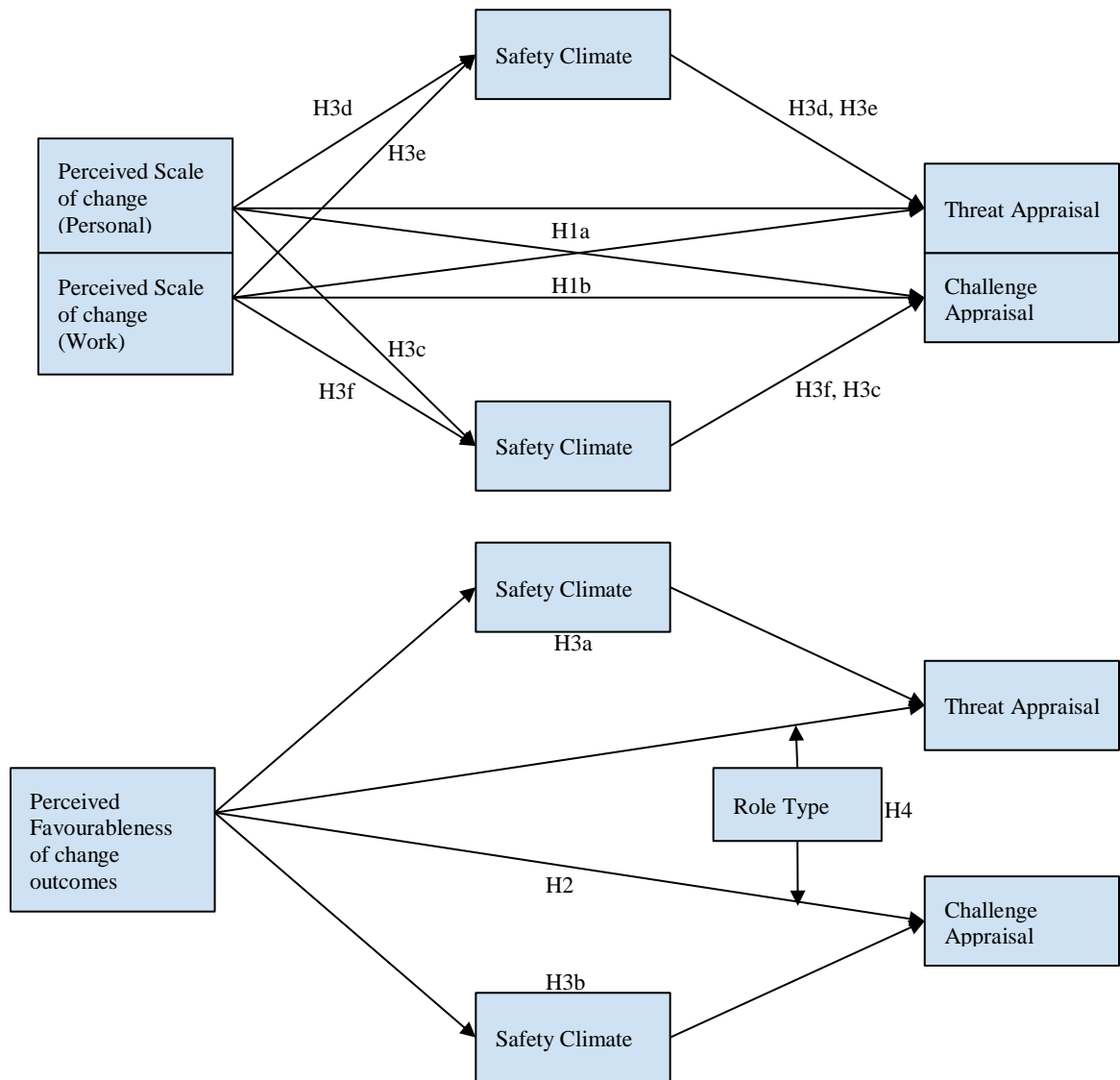


Figure 1.1 Conceptual Model of Perceived Favourableness of Change Outcomes and Perceived Scale of Change predicting Threat and Challenge Appraisal, and the Mediating Relationship of Safety Climate and Moderating relationship of Role Type. H's Represent hypothesized paths.

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Chapter 2 - Method

2.0 Design

The study was conducted using a quantitative cross-sectional, non-experimental design. The data were acquired through an online survey using Qualtrics as the platform for the survey. The survey took 10 to 15 minutes to complete and was online for 3 months from May 2018 till the end of July 2018.

2.1 Participants

Survey data were obtained from 256 participants throughout a variety of New Zealand workplaces. The actual number of participants who completed the survey to 100% was 178. Management and non-management employees were almost equal in number (Table 2.1), and there were nearly equal numbers of female and male participants, and one participant did not answer this question. Forty-six male participants occupied management positions, with 42 in non-management roles, compared to 50 female participants in non-management, and 39 in management roles. Age group was less equal: 16.9% under 25, 23.6% within 26 to 35 years old, 16.3% within 36 to 45 years old, 25.8% within 46 to 55 years old, and 17.4% over 55 years old. In regards to industry type, the “other” category featured 46 different industries, such as government, law, and logistics: 36.5% of participants. The next largest category was construction and trade: 27% of participants. The remaining participants were distributed unequally among the remaining industry options. Older age groups more often occupied management level roles, than younger age groups ($\chi^2 = 15.274$ $P = .004$).

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Table 2.1

Participant Demographics

Variable	Sub category	Frequency	Percentage %
Role type	Management	85	47.8
	Non-management	93	52.2
Gender	Male	88	49.7
	Female	89	50.3
Age Group	Under 25	30	16.9
	26 to 35	42	23.6
	36 to 45	29	16.3
	46 to 55	46	25.8
	Over 55	31	17.4
Industry Type	IT & Telco	16	9
	Healthcare	4	2.2
	Agriculture & Forestry	4	2.2
	Construction & Trade	48	27
	Education	8	4.5
	Engineering	9	5.1
	Energy	3	1.7
	Tourism & Hospitality	11	6.2
	Business & Finance	10	5.6
	Other	65	36.5

Note. Other = 46 different industries featuring 0.6% to 4% of the sample size for each industry.

2.2 Procedure

A number of organisations which had implemented health and safety change recently were approached through email and phone conversations. A formal information sheet was provided to senior stakeholders to identify the purpose of the research and the requirements for participation (Appendix 1). Once approval had been given to distribute the survey by senior stakeholders, the organisations were then given an information template with a link to the survey (Appendix 2) which was distributed via email and through internal communication networks to employees by the senior stakeholders or internal communication administrators. The

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organisations varied in size from 4 employees to over 200 employees. Additionally, the survey was distributed through social media, such as the researcher's personal LinkedIn and Facebook pages, and through e-newsletters for professional membership groups. Access to these groups was gained by contacting the administrators of each group and requesting permission to distribute the information about the survey. The ionet mailing list, and Massey's psych-grad mailing list were also used to advertise the study. Criteria for participation were: participants must have experienced a health and safety change within their workplace recently; they had to be over 18, and based within New Zealand

The project has been evaluated by peer review and judged to be low risk. Consequently, it was not reviewed by one of the University's Human Ethics Committees (Appendix 3). Participation was voluntary and all responses were anonymous and confidential. Respondents were asked to provide demographic information including age, gender, whether they were in management or non-management positions, and what industry they worked within.

2.3 Measures

Participants were asked to identify a health and safety change they had experienced within their workplace recently. The following questions were asked in relation to the identified change, except for the 49 safety climate scale questions.

Perceived Favourableness of change outcomes was measured using a 3 item scale developed by Fedor et al. (2006), e.g. "As a result of this change, most people in this work unit are better off". The items were rated using a 5-point Likert scale, Strongly Disagree=1 to Strongly Agree=5. A Principal Component analysis, with varimax rotation and Kaiser

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nomalisation identified one component with an eigenvalue above 1, explaining 67.6% of the variance (See Appendix 4.1 for principle component analysis table). Parallel analysis was conducted via <https://analytics.gonzaga.edu/parallelengine/>, confirming the one component solution. A scale score for favourableness of change was computed as the item means (Cronbach's alpha = .76).

Perceived Scale of change was measured using 7 items from Caldwell, Herold, and Fedor (2004), and Smollan (2009), e.g. “As a result of this change, the nature of my work has changed”. The items were rated using a 5 point Likert scale, 1=Strongly Disagree to 5=Strongly Agree. A Principal Component analysis with Varimax rotation and Kaiser normalisation identified two components, component 1 explaining 41.5% of the variance, and component 2 explaining 34.3% (See Appendix 4.2 for principle component analysis table). Four items loaded onto component 1 which related to Perceived Personal Scale of change, and 3 items loaded onto component 2 relating to Perceived Work Unit Scale of change. Parallel analysis via <https://analytics.gonzaga.edu/parallelengine/> confirmed only two components. Two subscales were created from the item mean scores: Perceived Personal Scale of change (Cronbach's alpha = .89) and Perceived Work Unit Scale of change (Cronbach's alpha = .84).

Threat Appraisal was measured using an adapted 4 item subscale developed by Peacock and Wong (1990), e.g. “Will the outcome of this change be negative?”. The items were rated using a 5 point Likert scale from Not at all (1) to Extremely (5). A Principal Component Analysis with Varimax rotation and Kaiser normalisation identified one component explaining 71.9% of the variance (See Appendix 4.3 for principle component analysis table). Parallel

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analysis via <https://analytics.gonzaga.edu/parallelengine/> confirmed a one-factor solution. The threat scale was created using item means (Cronbach's alpha = .870).

Challenge Appraisal was measured using an adapted 4 item subscale developed by Peacock and Wong (1990), e.g. “To what extent can I become a stronger person because of this change?”. The items were rated using a 5 point Likert scale from Not at all (1) to Extremely (5). A Principal Component Analysis was conducted with Varimax rotation and Kaiser normalisation identifying one component explaining 65.9% of the variance (See Appendix 4.4 for principle component analysis table). Parallel analysis via <https://analytics.gonzaga.edu/parallelengine/> confirmed a one component solution. A scale was created for challenge appraisal using item means (Cronbach's alpha = .83).

Safety Climate was measured using 49 items from Hayes, Perander, Smecko, and Trask, (1998). Workplace Safety Scale, e.g. “Think about your supervisor. Do you agree or disagree that each of the following words or phrases describes your supervisor? “Praises safe work behaviors”. The measure was rated using a 5 point Likert scale from “Strongly disagree=1 to Strongly Agree=5”; and contained 15 reverse coded questions. A Principal Component Analysis with Varimax rotation and Kaiser normalisation identified 5 components, 10 items related to Component 1 (Supervisor safety) accounting for 15.25% of variance, 9 items related to Component 2 (Safety programme) accounting for 12.51% of the variance, 10 items related to Component 3 (co-worker safety) accounting for 12.26% of the variance, 10 items related to Component 4 (Job safety) accounting for 11.02% of variance, and 10 items related to component 5 (Management safety) accounting for 10.72% of the variance (See Appendix 4.5 for principle component analysis table). Parallel analysis via <https://analytics.gonzaga.edu/parallelengine/>

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confirmed the 5 component solution. Five scales were created using item means, Supervisor Safety (Cronbach's alpha =.953), Safety Programme (Cronbach's alpha =.915), Co-worker Safety (Cronbach's alpha =.941), Job Safety (Cronbach's alpha =.905), and Management Safety (Cronbach's alpha =.908).

2.4 Data Analyses

Statistical analyses were conducted using IBM SPSS V25, and the moderation and multiple parallel mediation models were conducted using PROCESS Version 3.0 by Andrew Hayes. Missing data were handled using listwise deletion for cases with under 4% missing data, and cases with more than 4% missing data were removed from the data set, except for cases pertaining to safety programme in the safety climate measure as this was an optional question and resulted in 23 to 23.6% missing values for these 9 questions; listwise deletion was used here.

Pearson's correlation, Spearman's correlation, and independent sample t-tests were utilised to test the relationships between variables. The independent sample t-tests utilised Cohen's (d) as the effect size, 0.2 indicating a small effect, 0.5 indicating a medium effect, and 0.8 indicating a large effect (Fritz, Morris, & Richler, 2012). Cohens d was used, as p value is not enough to determine if the effect actually matters and is not confounded by sample size (Sullivan & Feinn, 2012). Multiple regression was utilised to test hypothesis 1a, 1b, and 2, while controlling for role type.

Statistical power was estimated using the G*power calculator (Faul, Erdfelder, Lang, & Buchner, 2007) to determine the sample size to attain a power of .80 for the hypothesised models. A priori statistical power analysis estimated the simple multiple regression models

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required a sample size of 77. Multiple parallel mediation required a sample size of 98 and moderation required a sample size of 68.

Multiple parallel mediation using PROCESS model 4 was conducted to test Hypotheses 3a, b, c, d, e, and f. Historically mediation effects have been determined utilising the causal effects method (Baron & Kenny, 1986); however, the statistical computing programme of PROCESS (Hayes, 2018b) allows indirect, direct and total effects to be calculated, lowering the risk of type 1 error. Additionally, the causal effects method would have limited our power, due to the amount of models needing to be run (Hayes, 2009; Hayes, 2018a; Hayes, 2018b). Structural equation modelling was not utilised due to our sample size and the amount of missing data (Wolf, Harrington, Clark, & Miller, 2013). The Sobel test (Sobel, 1982; Sobel, 1986) was also not utilised as this employs a products of coefficients approach, using a p value based on a normal sampling distribution, which in most cases cannot be assumed unless with very big samples which does not include the present sample (Preacher & Hayes, 2008). Bootstrapping was utilised as a robust resampling method to combat and account for normality violations (Hayes, 2018b). The mean indirect effect for mediation was computed over 5,000 resamples to compute the point estimate of the effect. In addition, bootstrapped 95% percentile confidence intervals were used to make inferences: if intervals did not contain zero, the point estimate of the indirect effect was considered significant (Hayes, 2018b).

Moderation was computed with Hayes PROCESS, using model 1, determining the interaction effect of role type for Hypotheses 4a and b. Bootstrapping was not used in the moderation analysis as Hayes (2018b) recommends to only use it alongside Johnson-Neyman and continuous moderators. Additionally, age would confound role type, so age was dropped

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from all regression, mediation, and moderation analyses as a control variable, as generally older age groups were in management positions, compared to younger age groups ($\chi^2 = 15.274$ $P = .004$). Role type was dichotomous in nature and was coded 0.000 for management employees, and 1.000 for non-management employees; gender was also dichotomous and was coded 0.000 for males and 1.000 for females. Gender and Role type were controlled for in the multiple parallel mediation model by entering them into the models as covariates Hayes (2018b). Additionally, significance values for multiple parallel mediation and moderation are represented by their actual value not ** or * to support the confidence interval results (Hayes, 2018b).

Table 2.2 presents the normality analyses. None of the scales met the assumptions of normality, either indicating skewness or kurtosis, so bootstrapping was employed for the majority of the analyses, apart from moderation. The correlation matrix was run with logarithmic and logarithmic reverse transformed-variables as well as non-transformed variables. No meaningful difference was observed between transformed and untransformed variables; therefore, our analyses have all been conducted with non-transformed variables.

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Table 2.2
Normality Analysis

Variable	D	df	p	Skew	Skew SE	Kurtosis	Kurtosis SE
1.Perceived Favourableness of Change Outcomes	.15	178	.00	-.65	.18	.09	.36
2.Perceived Personal scale of change	.11	178	.00	-.42	.18	-.53	.36
3.Perceived Work Unit Scale of Change	.13	178	.00	-.75	.18	.40	.36
4.Threat	.24	178	.00	1.92	.18	3.31	.36
5.Challenge	.08	178	.00	.02	.18	-1.04	.36
6.Safety Climate - Job Safety	.11	174	.00	-.44	.18	-.67	.36
7.Safety Climate - Coworker Safety	.08	174	.00	-.42	.18	-.09	.36
8.Safety Climate - Supervisor Safety	.10	174	.00	-.51	.18	-.09	.36
9.Safety Climate - Management Safety	.10	174	.00	-.45	.18	.34	.36
10.Safety Climate - Safety Programme	.12	137	.00	-.58	.20	.42	.41
11. Age Group	.19	178	.00	-.04	.18	-1.28	.36

Note. D=Kolmogorov-Smirnov, df=degrees of freedom, p=significance, SE=Standard error.

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Chapter 3 - Results

3.1 Correlation Matrix

Bivariate correlations are presented in Table 3.1, featuring a number of relationships of interest. In line with our predictions, Perceived Favourableness of change outcomes showed a positive relationship with Challenge Appraisal and was negatively associated with Threat Appraisal. Perceived Personal Scale of change was positively related to Threat Appraisal and negatively related to Challenge Appraisal. Perceived Personal Scale of change was also positively associated with Perceived Work Unit Scale of change. While Perceived Work Unit Scale of change was positively associated with Threat Appraisal, Challenge Appraisal, and Perceived Personal Scale of change.

The five Safety Climate variables did show some interesting relationships with our focal predictors and outcome variables. Job safety negatively related to Perceived Personal Scale of change, Perceived Work Unit Scale of change, and Threat Appraisal, and Perceived Personal Scale of change. Co-worker safety was negatively related to Threat Appraisal. Supervisor safety was positively related to Perceived Favourableness of change outcomes, Perceived Personal Scale of change, Perceived Work Unit Scale of change, and Challenge Appraisal. Safety Management was positively related to Perceived Favourableness of change outcomes, Perceived Work Unit Scale of change, Challenge Appraisal, but negatively related to Threat Appraisal. Safety programme showed a moderate positive relationship with Perceived Favourableness of change outcomes and Challenge Appraisal; however, it was negatively related to Threat Appraisal.

Age was only significantly associated with higher levels of Challenge Appraisal.

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Table 3.1

Descriptive Statistics and Correlation Matrix for all Scale Variables and Age

Variable	M	SD	1	2	3	4	5	6	7	8	9	10	11
1. Perceived Favourableness of Change Outcomes	3.30	.84	1.00										
2. Perceived Personal Scale of Change	3.09	1.03	.03	1.00									
3. Perceived Work Unit Extent of Change	3.53	.99	.10	.62**	1.00								
4. Threat Appraisal	1.55	.81	-.44**	.37**	.29**	1.00							
5. Challenge Appraisal	2.76	1.04	.61**	-.21*	.19**	.19*	1.00						
6. Safety Climate: Job Safety	3.85	.82	.01	-.31**	-.24**	-.27**	-.08	1					
7. Safety Climate: Coworker Safety	3.69	.70	.14	-.14	-.09	-.30**	.06	.15*	1				
8. Safety Climate: Supervisor Safety	3.60	.85	.21**	.15*	.22**	-.12	.20**	-.09	.41**	1			
9. Safety Climate: Management Safety	3.64	.69	.26**	.06	.18*	-.23**	.16*	-.02	.44**	.61**	1		
10. Safety Climate: Safety Programme	3.86	.73	.36**	-.02	.06	-.35**	.26**	.13	.48**	.60**	.65**	1	
11. Age	3.03	1.36	.03	.09	.04	.13	.22**	.10	.02	.08	-.13	-.00	1

Note. Pearson's r for variables 1 to 10, and Spearman's coefficient for variable 11, M=Mean, SD=Standard deviation, ** Correlation is significant at the .01 level, * significant at .05 Level (2-tailed)

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3.2 Group Differences

An independent samples T-test was conducted to determine if there were any significant differences between role type groups and gender groups on each individual scale variable.

Management participants ($M = 3.50$) had higher scores on Perceived Favourableness of change outcomes, $t(176) = 3.077$, $p = .004$, $d = .510$, compared to non-management employees ($M = 3.12$). Management participants ($M = 3.09$) had higher scores on Challenge Appraisal, $t(176) = 4.200$, $p = .001$, $d = .652$, compared to non-management participants ($M = 2.46$).

Additionally, male participants ($M = 3.28$) had lower scores on Perceived Personal Scale of change, $t(175) = 2.355$, $p = .025$, $d = .363$, compared to female participants ($M = 2.92$).

Compared to females participants ($M = 4.10$), male participants ($M = 3.60$) had lower scores on Job safety, $t(175) = -4.203$, $p = .001$, $d = .261$. Additionally, Male participants ($M = 3.74$) had higher scores on Supervisor safety, $t(173) = 2.164$, $p = .029$, $d = .360$, compared to female participants ($M = 3.46$).

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3.3 Regression Analyses, Multiple Parallel Mediation, and Moderation

Hypothesis 1a, that Perceived Scale of change would relate to Challenge Appraisal, was not supported. The overall model was significant (Table 3.2), but the only significant predictor of Challenge Appraisal was Role type. Non-managers showed lower levels of Challenge Appraisal than managers.

Hypothesis 1b was also not supported as Perceived Scale of change was not significantly related to Threat Appraisal. The overall model was significant, however only Perceived Personal Scale of change was significantly related to Threat Appraisal.

Hypothesis 2 was supported as Perceived Favourableness of change outcomes was significantly related to Challenge Appraisal, with Role type as a control variable. The overall model was significant and Role type was also a significant predictor with managers showing higher levels of Challenge Appraisal.

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Table 3.2

Regression of Perceived Personal Scale of Change, Perceived Work Unit Scale of Change, Perceived Favourableness of Change Outcomes, and Role Type Predicting Challenge and Threat Appraisal

	B	SE B	β	Bootstrapped BCa 95% CI	
				Lower	Upper
Challenge Appraisal					
(Constant)	2.35**	.28		1.76	2.98
1. Role type Non-Management	-.57**	.15	-.27	-.87	-.29
2. Perceived Personal Scale of Change	.11	.08	.11	-.04	.26
3. Perceived Work Unit Scale of Change	.10	.08	.09	-.06	.25
Regression Equation: F(3, 174) = 8.388, p < .000, R² .126, Adjusted R² = .111					
Threat Appraisal					
(Constant)	.41*	.19		.01	.80
1. Role type Non-management	.13	.11	.08	-.09	.36
2. Perceived Personal Scale of Change	.24**	.06	.31	.12	.36
3. Perceived Work Unit Scale of Change	.09	.05	.11	-.01	.20
Regression Equation: F(3, 174) = 10.268, p < .000, R² .150, Adjusted R² = .136					
Challenge Appraisal					
(Constant)	.59 *	.28		.00	1.12
1. Role type Non-management	-.35*	.13	-.17	-.63	-.08
2. Perceived Favourableness of Change	.71**	.07	.57	.58	.85
Outcomes					
Regression Equation: F(2, 175) = 59.573, p = .000, R² .405, Adjusted R² = .398					
<i>Note.</i> Constant = Management, BCa 95% CI=[lower, upper]. B=Unstandardized coefficient, SE B= Standard error of unstandardized coefficient, β=Standardised coefficient, ** Correlation is significant at the .01 level, * significant at .05 Level (2-tailed)					

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From a parallel multiple mediation analysis conducted using ordinary least squares path analysis, we determined that none of the facets of safety climate mediated the relationship between Perceived Favourableness of change outcomes and Threat Appraisal when controlling for Role and Gender. The bootstrap confidence intervals featured zero for all indirect effects (Table 3.3), so Hypothesis 3a was not supported. Additionally, the direct effect between Perceived Favourableness of change outcomes and Threat Appraisal was significant, but not mediated.

Similarly, none of the facets of safety climate mediated the relationship between Perceived Favourableness of change outcomes and Challenge Appraisal when controlling for Role and Gender. The bootstrap confidence intervals featured zero for all indirect effects, so Hypothesis 3b was not supported. Importantly, the direct effect between Favourableness of Change outcomes and Challenge Appraisal was significant, but not mediated.

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Table 3.3
Safety Climate as a Mediator between Perceived Favourableness of Change Outcomes and Cognitive Appraisal

	Point Estimate			Bootstrapped Percentile 95% CI	
	Coeff	SE	p	Lower	Upper
Threat Appraisal					
<i>Indirect effects</i>					
Safety climate-job safety	.009	.016		-.026	.041
Safety climate-Co-worker safety	-.050	.032		-.119	.002
Safety climate-Supervisor safety	.023	.035		-.038	.099
Safety climate-Management safety	-.043	.044		-.143	.030
Safety climate-Programme Safety	-.018	.050		-.112	.087
Total Indirect effect	-.079	.043		-.166	.006
Direct effect (NB)	-.365	.076	.000	-.515	-.215
Total Effect (NB)	-.444	.075	.000	-.592	-.297
Total effect Model: $F(3, 132) = 13.224$, $p = .000$, $R^2 = .231$					
Challenge Appraisal					
<i>Indirect effects</i>					
Safety climate-job safety	.006	.014		-.016	.043
Safety climate-Co-worker safety	-.019	.027		-.073	.038
Safety climate-Supervisor safety	.017	.033		-.037	.097
Safety climate-Management safety	-.063	.048		-.181	.009
Safety climate-Programme Safety	.073	.049		-.019	.176
Total Indirect effect	.013	.046		-.071	.112
Direct effect (NB)	.682	.088	.000	.507	.857
Total Effect (NB)	.695	.082	.000	.533	.857
Total effect Model: $F(3, 132) = 32.593$, $p = .000$, $R^2 = .426$.					

Note. NB=Not bootstrapped, Coeff=Coefficient, SE=Standard Error, P = Significance.

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None of the facets of safety climate mediated the relationship between Perceived Personal Scale of change and Challenge Appraisal, while controlling for Role and Gender. The bootstrap confidence intervals featured zero for all indirect effects (Table 3.4), so Hypothesis 3c was not supported. The direct effect between Perceived Personal Scale of change and Challenge Appraisal was not significant and was not mediated

Similarly, none of the facets of safety climate mediated the relationship between Perceived Personal Scale of change and Threat Appraisal, while controlling for Role and Gender. The bootstrap confidence intervals featured zero for all indirect effects (Table 3.4), so Hypothesis 3d was not supported. The direct effect between Perceived Personal Scale of change and Threat Appraisal was significant, but not mediated.

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Table 3.4

Safety Climate as a Mediator between Perceived Personal Scale of Change and Threat Appraisal & Challenge Appraisal

	Point Estimate			Bootstrapped Percentile 95% CI	
	Coeff	SE	p	Lower	Upper
Threat Appraisal					
<i>Indirect effects</i>					
Safety climate-job safety	.017	.017		-.010	.056
Safety climate-Co-worker safety	.032	.026		-.006	.093
Safety climate-Supervisor safety	.002	.012		-.019	.031
Safety climate-Management safety	.011	.019		-.016	.062
Safety climate-Programme Safety	.005	.020		-.027	.059
Total Indirect effect	.067	.048		-.016	.171
Direct effect (NB)	.206	.069	.003	.070	.342
Total Effect (NB)	.273	.071	.000	.132	.414
Total effect Model: $F(3, 132) = 6.127, p = .001, R^2 = .122$.					
Challenge Appraisal					
<i>Indirect effects</i>					
Safety climate-job safety	.030	.024		-.008	.008
Safety climate-Co-worker safety	.000	.025		-.051	.052
Safety climate-Supervisor safety	.002	.015		-.016	.045
Safety climate-Management safety	.008	.020		-.023	.058
Safety climate-Programme Safety	-.010	.036		-.089	.062
Total Indirect effect	.029	.046		-.053	.131
Direct effect (NB)	.091	.092	.322	-.091	.724
Total Effect (NB)	.120	.090	.185	-.058	.299
Total effect Model: $F(3, 132) = 6.235, p = .001, R^2 = .124$.					

Note. NB=Not bootstrapped, Coeff=Coefficient, SE=Standard Error, P= Significance.

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None of the facets of safety climate mediated the relationship between Perceived Work Unit Scale of change and Threat Appraisal, while controlling for Role and Gender. The bootstrap confidence intervals featured zero for all indirect effects (Table 3.5), so Hypothesis 3e was not supported. The direct effect between Perceived Work Unit Scale of change and Threat Appraisal was significant but was not mediated.

Similarly, none of the facets of safety climate mediated the relationship between Perceived Work Unit Scale of change and Challenge Appraisal, while controlling for Role and Gender. The bootstrap confidence intervals featured zero for all indirect effects (Table 3.5), so Hypothesis 3f was not supported. The direct effect between Perceived Work Unit Scale of change and Challenge Appraisal was not significant and was not mediated

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Table 3.5

Safety Climate as a Mediator between Perceived Work Unit Scale of Change and Threat Appraisal & Challenge Appraisal

	Point Estimate			Bootstrapped Percentile 95% CI	
	Coeff	SE	p	Lower	Upper
Threat Appraisal					
<i>Indirect effects</i>					
Safety climate-job safety	.013	.015		-.007	.053
Safety climate-Co-worker safety	.017	.026		-.021	.085
Safety climate-Supervisor safety	.007	.018		-.023	.049
Safety climate-Management safety	-.012	.023		-.063	.034
Safety climate-Programme Safety	-.008	.021		-.059	.029
Total Indirect effect	.018	.570		-.085	.141
Direct effect (NB)	.186	.069	.008	.049	.323
Total Effect (NB)	.204	.075	.007	.057	.352
Total effect Model: $F(3, 132) = 3.658$, $p = .014$, $R^2 = .077$.					
Challenge Appraisal					
<i>Indirect effects</i>					
Safety climate-job safety	.021	.020		-.008	.072
Safety climate-Co-worker safety	.001	.018		-.035	.041
Safety climate-Supervisor safety	.007	.024		-.027	.069
Safety climate-Management safety	-.007	.022		-.064	.032
Safety climate-Programme Safety	.019	.040		-.054	.110
Total Indirect effect	.041	.042		-.030	.140
Direct effect (NB)	.063	.093	.498	-.121	.247
Total Effect (NB)	.104	.093	.264	-.079	.287
Total effect Model: $F(3, 132) = 6.041$, $p = .001$, $R^2 = .121$.					

Note. NB=Not bootstrapped, Coeff=Coefficient, SE=Standard Error, P= Significance.

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A moderation analysis conducted using ordinary least squares path analysis determined that role type did not significantly moderate the effect of Perceived Favourableness of change on Threat Appraisal, so Hypothesis 4a was not supported (Table 3.6). Additionally, role type did not significantly moderate Perceived Favourableness of change outcomes effect on Challenge Appraisal, so Hypothesis 4b was not supported. The direct effect of Perceived Favourableness of change outcomes on Threat Appraisal and Challenge Appraisal was significant, but was not moderated by Role type.

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Table 3.6

Role Type Moderating Perceived Favourableness of Change on Threat Appraisal and Challenge Appraisal

					Percentile 95% CI	
	B	SE B	t	p	Lower	Upper
Threat Appraisal						
Constant	2.59	.38	6.73	.00	1.83	3.35
1. Perceived Favourableness of Change Outcomes	-.30	.11	-2.79	.01	-.51	-.09
2. Role type Non-management	.65	.47	1.38	.17	-.28	1.59
3. Perceived Favourableness of Change Outcomes*Role type Non-management	-.23	.14	-1.69	.09	-.50	.04
Regression Equation: F(3, 174) = 15.72, p = .00, R ² = .21						
Challenge Appraisal						
Constant	.33	.43	.77	.44	-.52	1.18
1. Perceived Favourableness of Change Outcomes	.79	.12	6.57	.00	.55	1.03
2. Role type Non-management	.05	.53	.09	.93	-1.00	1.09
3. Perceived Favourableness of Change Outcomes*Role type Non-management	-.12	.15	-.79	.43	-.42	.18
Regression Equation: F(3, 174) = 39.84, p = .00, R ² = .41						

Note. Constant: Management, B=Unstandardised coefficient, SE B= Standard error of unstandardised coefficient, p=significance, t= t-statistic.

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3.4 Additional Analyses

In view of the bivariate correlations between the five facets of Safety Climate and Challenge and Threat Appraisal, and the non-significant mediation effects for Safety Climate. Two additional omnibus regressions were performed utilising all predictor variables, to determine if the facets of Safety Climate explained any unique variance in Challenge Appraisal and Threat Appraisal. Safety Climate was found to explain no significant unique variance within Threat or Challenge Appraisal, with the five facets: Job Safety, Co-worker Safety, Supervisor Safety, Management Safety, and Safety Programme all reporting non-significant values ($p > .05$), and the bootstrapped confidence intervals all containing zero (Table 3.7). The regression equation for all predictors on Threat Appraisal was significant, and for all predictors on Challenge Appraisal the equation was also significant.

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Table 3.7 *Omnibus Regression of Perceived Favourableness of Change Outcomes, Perceived Scale of Change, Role type, Gender, and Safety Climate Predicting Cognitive Appraisal*

	B	SEB	β	Bootstrapped BCa 95% CI	
				Lower	Upper
Challenge Appraisal					
(Constant)	.88	.75		-.57	2.21
1. Role type Non-Management	-.38*	.16	-.18	-.68	-.04
2. Gender-Female	-.01	.14	-.00	-.31	.30
3. Perceived Favourableness of change outcomes	.69**	.08	.57	.51	.86
4. Perceived Personal Scale of Change	.13	.08	.12	-.04	.28
5. Perceived Work Unit Scale of Change	-.04	.08	-.03	-.21	.12
6. Safety Climate-job safety	-.09	.09	-.07	-.27	.07
7. Safety Climate-Co-worker safety	-.06	.12	-.04	-.29	.26
8. Safety Climate-Supervisor safety	.05	.12	.04	-.17	.34
9. Safety Climate-Management safety	-.23	.17	-.14	-.58	.06
10. Safety Climate-Programme Safety	.21	.13	.15	-.09	.48
Regression Equation: $F(10, 125) = 10.87, p < .000, R^2 .465, \text{Adjusted } R^2 = .422$					
Threat Appraisal					
(Constant)	3.81**	.611		2.62	4.99
1. Role type Non-Management	-.05	.11	-.03	-.28	.20
2. Gender-Female	-.06	.11	-.04	-.27	.12
3. Perceived Favourableness of change outcomes	-.37**	.09	-.39	-.56	-.15
4. Perceived Personal Scale of Change	.12	.06	.14	-.01	.23
5. Perceived Work Unit Scale of Change	.15*	.06	.17	.04	.24
6. Safety Climate-job safety	-.13	.07	-.14	-.30	.02
7. Safety Climate-Co-worker safety	-.16	.12	-.14	-.44	.08
8. Safety Climate-Supervisor safety	.04	.12	.04	-.18	.26
9. Safety Climate-Management safety	-.16	.16	-.13	-.48	.13
10. Safety Climate-Programme Safety	-.07	.13	-.06	-.35	.21
Regression Equation: $F(10, 125) = 9.72, p < .000, R^2 .420, \text{Adjusted } R^2 = .374$					

Note. Constant = Management, BCa 95% CI=[lower, upper]. B=Unstandardized coefficient, SE B= Standard error of unstandardized coefficient, β =Standardised coefficient, ** Correlation is significant at the .01 level, * significant at .05 Level (2-tailed).

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Chapter 4 - Discussion

4.1 Introduction

The present study applied Lazarus and Folkman's (1984) cognitive appraisal model to health and safety oriented organisational change, while integrating a Job Demands and Resources approach (Demerouti et al., 2001) to explain how relevant factors to both health and safety change were related to appraisal. The study explored how safety climate may act as a mediator in the cognitive appraisal of organisational change and expands on existing research in understanding how perceptions of change characteristics relate to the cognitive appraisal. The applied nature of health and safety change research is especially relevant to New Zealand with the recent and ongoing health and safety transformations across industries and the reoccurrence of workplace deaths and accidents.

The results offer some support for the idea that appraisal hinges on the balance between the demands and resources of a situation. Essentially, Perceived Favourableness of change outcomes and independently Perceived Personal Scale of change related to appraisal, reinforcing that the value, valence, size, and impact of a change can relate to an appraisal of potential resource loss or gain and consequently result in Threat, and Challenge Appraisal. Individuals do strive to protect, maintain, and build their resources when encountering situations like large scale health and safety change with either favourable or unfavourable outcomes.

Specifically, Perceived Scale of change did not relate to Challenge Appraisal at both the work unit and personal level, once the effect of role was accounted for. This result does not provide support for how smaller personal impact or work unit changes related to positive

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responses and attitudes in Griffin and Rafferty (2006) and Ujhelyi et al. (2015). Conversely, Perceived Personal Scale of change did associate with Threat Appraisal, suggesting that the size and impact of change is especially relevant to the individuals' own job and personal circumstances. However, Perceived Work Unit Scale of Change did not relate to Threat Appraisal when controlling for Role type. Our results align with conclusions drawn by Lau and Woodman (1995), and with evidence suggesting that change perceived as having larger personal implications and job impacts are related to negative responses (Caldwell, Herold, & Fedor, 2004; Fedor, Caldwell, & Herold, 2006; Mossholder et al., 2000), and does not support evidence suggesting change perceived to impact others or members of their work unit relates to individual responses or cognitions either positive or negative (Weber & Manning, 2001). Additionally, females tended to perceive safety change was more personally impacting than did males.

As expected, Perceived Favourableness of change outcomes positively related to Challenge Appraisal. Our results emphasise that outcome valence and the underlying intrinsic and extrinsic value of change outcomes feed into how individuals appraise a change. Additionally, the results align with qualitative conclusions that change outcomes seen as favourable will result in positive emotional responses, and likely positive cognitive appraisals (Smollan, 2009; Smollan & Matheny, 2005). Perceptions of Favourable change outcomes allow individuals to acknowledge that they may experience net growth in their resources, expecting, or perceiving the safety additions to the workplace may add value contributing to psychological and physical safety.

Unexpectedly, we identified that Perceived Favourableness of change outcomes also related to Threat Appraisal. This suggests that unfavourable outcomes can allow individuals to

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acknowledge that change may be detrimental to their existing resources as it may not add or provide any additions to the workplace contributing to the individual's safety. Unfavourable perceptions of safety change outcomes could be driven by a perceived misalignment of the outcome of the change experienced by the employees with the intended goal of change by the managers and organisations or even at the legislative level, consequently, employees may perceive the change did not actually make work safer and have responded with Threat Appraisals. Interestingly, the effect sizes show that Perceived Favourableness of change outcomes is a stronger predictor of Challenge Appraisal than Threat Appraisal, indicating that outcomes of change often have implications for resources and suggest resource gain is more prominent in change situations than resource loss. Our findings suggest that safety changes in New Zealand may feature unfavourable attributes. An explanation for unfavourable perceptions could exist in how health and safety has been viewed historically in New Zealand. It has been seen as a hindrance to some New Zealanders and is an area of business which has had a historically negative image; additionally, individuals lacking the understanding of what health and safety regulation and changes are implemented to do, could be cause for unfavourable perceptions relating to threat appraisal (Brown, 2015; Worksafe, 2016).

The separate nature of appraisals and the interdependent nature of demands and resources is highlighted in the results with the relationships between the appraisal types, and the change characteristics. Essentially, an individual who perceives change outcomes as favourable can experience both challenge and threat appraisal while Perceived Personal scale of change also could relate to threat appraisal in the same multivariate equation emphasizing the complex nature of appraisal responses in change situations.

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Resource-based factors, such as safety climate and role type, did not play a mediating or moderating role in the appraisal process; however, they may still act as resources contributing to appraisal. An additional regression analysis performed identified that none of the facets of safety climate contributed any significant unique variance to cognitive appraisal, once Perceived Favourableness of change outcomes, Perceived Scale of change, role type, and gender had been controlled for. These results suggest that safety climate plays no significant part in explaining how individuals cognitively appraise health and safety organisational change. It does not act as a significant resource interacting with the demands of safety-related change and is not conducive with existing research supporting safety climates role as a resource (Nielsen, Mearns, Matthiesen, & Eid, 2011). Additionally, this result does not support existing research which suggests safety climate may relate to safety-related behaviours, such as engaging in and initiating health and safety orientated change (Christian et al., 2009; Hofmann et al., 2003). It aligns with results suggesting that the psychological nature of safety climate washes out in predicting specific behaviours (Gardner et al., 2014).

This research indicates that safety climate did not play a critical role in the appraisal of safety change. This may be due to the abstract psychological nature of the concept and how it is not an inherent and stable trait within organisations and is more likely to adapt with change than relate to responses, unlike organisational climate or organisational culture which are much more ingrained psychological concepts within organisations (Moran & Volkwein, 1992). Reichers and Schneider (1990) articulated that climate is a manifestation of culture and other organisational structures and may not hold the same influence on behaviors during change because it potentially will adapt with the change.

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Specifically, Role type did not moderate the appraisal process; however, it related directly to Challenge Appraisal, indicating that managers responded with higher levels of Challenge Appraisal than non-management. Additionally, it was indicated that managers had more favourable perceptions of health and safety change outcomes than non-management. The expectation that managers would have better access to job resources, such as decision-making autonomy, learning (Covin & Kilmann, 1990; Haugh & Laschinger, 1996; Luthans & Sommer, 1999), access to information (Cunningham et al., 2002; Wanberg & Banas, 2000), and participation, did not substantiate into offsetting the demands of change characteristics through moderation, but did in direct relationships with Challenge Appraisal and Perceived Favourableness of change outcomes. Furthermore, the T-test results do support the findings from Ndlovu and Parumasur (2005) that job category, such as top management, middle management, and lower level employees respond to change differently. We suggest that the nature of health and safety change being legislated and institutionalised may have limited how resources could moderate appraisal, as change may have featured little control, which is common with legislated change.

4.3 Implications for research

This research highlights that a balance between demands and resources does relate to the cognitive appraisal of organisational change. The integrated appraisal, job demands, and job resources approach could be researched further with a broader look at demands associated with change, such as other change characteristics, and resources specific to change, ideally forming a structural model articulating the complex relationships associated with the appraisal of change.

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Additionally, as a consequence of appraisal it would be beneficial to incorporate possible coping mechanism or behaviors acknowledging the full transactional model (Lazarus & Folkman, 1984). Perceived Favourableness of change outcomes and Perceived Scale of change hold implications for the appraisal of change; however, it may also extend further into predicting specific coping mechanisms or other behavioural, emotional, and cognitive responses (Fugate et al., 2012; Smollan, 2009).

Separate to the current change characteristics, there are an abundance of factors which could provide areas of future research, such as ambiguity and uncertainty of change. Additionally, although resource-based factors, such as safety climate and role type did not mediate or moderate the appraisal as expected, we do expect that there are other organisational resources which could interact with the appraisal process, such as organisational culture defined as the way things are done in an organisation, which may have more practical relevance to how individuals practised health and safety before and after change (Verbeke, Volgering, & Hessels, 1998).

Utilising health and safety changes is interesting in its own regard for change research, as there is a lack of evidence in favourable outcomes of change outside of mergers and acquisitions, restructures, and technology implementation (Fedor et al., 2006). Our research reinforces that valence of change is a critical aspect in the appraisal process and throughout organisational change as a whole, as it indicates the change has the potential for added intrinsic value or resources. However, further research is needed to address what intrinsic and extrinsic outcomes of health and safety change actually make it favourable.

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Our results demonstrate that the abstract psychological nature of safety climate is not salient with appraisal responses to safety-related change as suggested by Christian et al. (2009) and Hofmann et al. (2003). However, as safety climate does play a critical role in the safety performance of organisations and its employees (Griffin & Neal, 2000), more work is required to provide stronger support for safety climates' relevance and stability when organisational change occurs, and to determining if it is valuable in change situations.

4.4 Implications for Practice

Organisations should aim to understand how employee perceptions of the scale and favourableness of change outcomes of proposed change. Therefore, organisations may need to assess potential/planned or implemented change from a 360 perspective; gathering insights from all directions, horizontally and vertically within an organisation (Garavan, Morley, & Flynn, 1997). Essentially, to understand if the change contains novel attributes or characteristics which may contribute to large scale perceptions, unfavourable or favourable outcomes and consequently may lead to threat or challenge appraisal (Lazarus & Folkman, 1984). While considering that group differences between managers and non-management exist in perceptions and responses to change.

Managing favourableness of change outcomes rests with the outcome valence of organisational events, as the intrinsic attributes of change can be deemed as most favourable (Armenakis, Bernerth, Pitts, & Walker, 2007; Van Eerde & Thierry, 1996; Vroom, 1964). However, the actual favourable aspects of the outcomes could vary between different change types, industries, organisations, teams, and individuals. Change outcomes can occur indirectly,

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so the intricacies of change will have to be explored thoroughly to understand direct and indirect outcomes, and dialogue for this must be addressed with staff.

Regardless of the proposed good nature of health and safety change outcomes, there will be those that still see it as unfavourable. It will be necessary for organisations to develop training and knowledge sharing initiatives to educate and drive out these existing attitudes to health and safety, as safety knowledge is a key component in predicting and promoting safety performance (Griffin, & Neal, 2000; Neal, Griffin & Hart, 2000), and this may be critical in achieving favourable perceptions of health and safety change, and consequently positive appraisal types. It is essential to consider that managers should not impose their desired view of the change and its outcome on employees but try to actively engage and involve individuals in the change process to achieve fair and strategic change (Coyle-Shapiro, 1999; Dibella, 2007; Lines, 2004; Miller, Johnson, & Grau, 1994).

It is apparent that practitioners and organisations do not need to focus and spend resources on implementing and promoting a safety climate before initiating safety change. Consequently, safety climate may adjust accordingly after health and safety change and adapt to the values promoted by the new organisational structures and procedures (Allen, 2003).

4.6 Limitations

This study is not without its limitations; firstly, the study utilised self-report measures which are exposed to a series of disadvantages. The self-report accuracy could be impacted by memory and recall of the participants, self-deception, and impression management (Paulhus & Vazire, 2007), alongside common method variance, and response bias (Hair, Black, Babin, &

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Anderson, 2009). It must be noted that internet-based self-report surveys do have some limitations but can access a diverse range of respondents from various organisations, demonstrated by our near equally distributed samples in regards to age, and gender (Gosling, Vazire, Srivastava, & John, 2004).

Sample size was a factor which may have impacted our ability to find significant results for the mediation analyses and moderation analyses as listwise deletion minimised the sample size. Traditionally, studies within the health and safety field have been subject to smaller sample sizes in general (Champoux, & Brun, 2003; Dollard & Bakker, 2010; Lingard, Cooke, & Blismas, 2010); however, there are examples where large samples have been achieved (De Cieri, Shea, Donohue, Sheehan, & Cooper, 2015; Neal, Griffin, & Hart, 2000). Additionally, sample size was limited due to the unique nature of the study, not every individual in a workplace is aware and has the willingness to participate due to the historically negative and ill-informed outlooks on health and safety in New Zealand (Brown, 2015; Nielsen, 2015).

Our study did not cover all factors of change. Cullen-Lester, Webster, Edwards, and Braddy (2018) identified the importance of assessing multiple organisations regarding a change, due to the confound of number and size of change which can affect responses to change. We covered scale, but not the number of changes an individual has experienced. Importantly, Lazarus and Folkman (1984) identified the relevance of control over situations in appraisals, how much control can relate to appraisal type; this potentially could have confounded scale and favourableness, as the individuals generally would not have had much control over the change, as it is mostly policy driven, and a legal requirement in many cases.

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Finally, the conditions for establishing causality were not met, which are covariation, temporal ordering, and eliminating competing explanations, and is one limitation of this study. We have used Hayes PROCESS, to conduct our mediation and moderation analyses through multiple regressions and therefore our data is correlational in nature. We must ensure that causal inferences are not made from our data, our results suggest relationships exist, but do not suggest causation between variables exist (Hayes, 2015). Hayes identified that it is still appropriate to use process when not implying causation. However, we must make it clear that the data is correlational in nature.

Additionally, the ipsative normative design of research is more appropriate for assessing cognitive appraisal, as it involves repetitive measures, and would be well suited to a longitudinal design focussed on change (Lazarus & Folkman, 1984). However, a masters project is restrictive on this type of design. A longitudinal design could aid in establishing causation processes of change and cognitive appraisal, as suggested by Hayes (2018b).

4.5 Conclusion

The aim of this research was to investigate factors which related to the cognitive appraisal of health and safety oriented organisational change. Specifically, utilising the idea that appraisal hinges on the balance between perceived demands and resources of a situation (Lazarus & Folkman, 1984). An attempt was made to establish whether Perceived Favourableness of change outcomes and Perceived Scale of change interacted with Safety Climate and Role types to predict appraisal. Overall, favourableness of change outcomes and personal scale of change were predictors of appraisal and acted as situational factors; however, the resource-based factors

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demonstrated no significant interactions with appraisal. However, some direct relationships were established by Role type. Our research highlights only a few factors in a potentially unlimited multivariate equation of factors which may relate to the cognitive appraisal of organisational change.

Holistically, it is apparent that there is a link between progressive health and safety change characteristics and cognitive appraisals within New Zealand. Our results suggest that the Perceived Scale and Perceived Favourableness of change outcomes of health and safety change really matter to individuals in assessing how they may appraise these types of changes. There are still a number of individuals experiencing change as unfavourable and large scale which may be resulting in negative responses, such as threat appraisals; however, there are those that see safety change outcomes as favourable and appraise safety changes as a challenge. It is essential for New Zealand society, and organisations to address misinformation, lack of knowledge, and any remaining macho attitudes towards health and safety change that may be detrimental to the progression of safer societies, but also safer organisations. However, most importantly government and organisations must be involved in creating change initiatives that involve and draw from the knowledge of those most impacted. This is important as it can give valuable insight into practical and realistic safety changes, but also build engagement and commitment to changes at both policy, organisational, and individual levels. That being said the new legislation (HSWA, 2015) aligns with principal factors of change success, such as promoting worker participation in health and safety, and addressing responsibility for health and safety across the business.

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In culmination, the integrated balance approach to explaining cognitive appraisal of health and safety change, does provide some practical and theoretical implications for identifying change characteristics and job resources which could impact how an individual may respond. Overarchingly, it identifies the relevance of change characteristics in explaining cognitions to subjective situations and provides grounds for exploration of other organisational resources and demands that may affect appraisal responses.

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Appendices

Appendix 1: Copy of Letter to Organisations Requesting Access to Employees

Perceptions of Health and Safety Related Change in New Zealand Organisations

Dear,

My name is Matt Hurley, and I am currently researching perceptions of health and safety related change in New Zealand organisations for my Masters thesis in Industrial Organisational psychology at Massey University. (Details of previous contact/context either by phone or in person, professional connection etc.)

I would like to collect data using an online survey. It will take 10-15 minutes to complete. I would like permission to email your employees information about the study and a link to the survey.

The survey is voluntary, and all data will be completely anonymous and confidential. It has been approved by peer review via a Low Risk Notification to the Massey University Human Ethics Committee.

If you'd like to help me with this study, I can provide you with an email invitation with a link to the survey, which you can forward to employees.

When the study is complete, later this year, I can provide you with a summary of my findings.

If you'd like more information, please contact me or my supervisor using the contact details below. We would be happy to answer any questions.

Kind regards,

Matt Hurley
School of Psychology, Massey University.
Ph.: [REDACTED]
Email: [REDACTED]

Supervisor:
Dr Dianne Gardner,
Senior Lecturer, School of Psychology, Massey University.
Ph: (06) 356 9099 ext. 43441
Email: D.H.Gardner@massey.ac.nz

FACTORS RELATED TO THE COGNITIVE APPRAISAL OF WORKPLACE HEALTH AND SAFETY CHANGE

Appendix 2: Copy of Information Sheet for Participants

Perceptions of Health and Safety Related Change in New Zealand Organisations

My name is Matt Hurley, and I'm completing my Master's thesis in Industrial Organisational Psychology at Massey University. I am interested in health and safety-related change in New Zealand organisations, and whether these changes are seen as positive or negative.

If you would like to take part, below is a link to an online survey. It will take 10-15 minutes to complete. It will ask you to think about a recent health and safety-related change at work, and your views of the change and your organisation's safety climate.

The survey is completely voluntary and anonymous. If you do not want to answer any question, just skip it and move on.

If you would like a summary of my findings when the study is complete, at the end of the survey, there is a link where you can enter your email address. Emails are not linked to the questionnaire responses in any way.

This project has been evaluated by peer review and judged to be low risk. Consequently, it has not been reviewed by one of the University's Human Ethics Committees. The researcher(s) named in this document are responsible for the ethical conduct of this research. If you have any concerns about the conduct of this research that you want to raise with someone other than the researcher(s), please contact Dr Brian Finch, Director (Research Ethics), email humanethics@massey.ac.nz.

If you would like more information, please contact me or my supervisor, Dr Dianne Gardner, at Massey University. Our contact details are below.

Thank you very much for your time

Main Researcher: Matt Hurley Phone: [REDACTED] Email: [REDACTED]	Supervisor: Dr Dianne Gardner Phone: +64 (06) 356 9099 ext. 43441 Email: D.H.Gardner@massey.ac.nz
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Survey Link:
[Perceptions of Health and Safety Related Change Survey](#)

FACTORS RELATED TO THE COGNITIVE APPRAISAL OF WORKPLACE HEALTH AND SAFETY CHANGE

Appendix 3: Copy of Ethics Notification

Ethics notification: 4000019010

This project has been evaluated by peer review and judged to be low risk. Consequently it has not been reviewed by one of the University's Human Ethics Committees. The researcher(s) named in this document are responsible for the ethical conduct of this research.

If you have any concerns about the conduct of this research that you want to raise with someone other than the researcher(s), please contact Dr Brian Finch, Director (Research Ethics), email humanethics@massey.ac.nz.

FACTORS RELATED TO THE COGNITIVE APPRAISAL OF WORKPLACE HEALTH
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Appendix 4: Principal Component Analysis Tables

Appendix 4.1

Component Matrix for Factor Analysis of Favourableness of Change Scale

Item	Favourableness
PFC1 - As a result of this change, people in this work unit find their work more interesting.	.721
PFC2 - As a result of this change, most people in this work unit are better off.	.842
PFC3 - As a result of this change people's quality of life at work has improved.	.894
Eigenvalues	2.02
% of Variance	67.61%
Reliability	.757

Note. Extraction Method: Principal Component Analysis. 1 component extracted.

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Appendix 4.2

Rotated Component Matrix for Factor Analysis of Perceived Scale of Change Scale

Items	Perceived Impact scale for individual	Perceived extent for work unit
PSC1 - the nature of my work has changed.	.77	.38
PSC2 - my responsibilities have changed	.85	.15
PSC3 - I find greater demands placed on me at work	.83	.27
PSC4 - I am expected to do more work than I used to do	.79	.37
PSC5 - This specific change involved changes in the work unit's processes and procedures.	.37	.72
PSC6 - This specific change involved changes in the way people do their jobs in this work unit.	.24	.87
PSC7 - This specific change involved changes in daily routines of employees in this work unit.	.22	.85
Eigenvalues	4.30	1.00
% of Variance	61.42	14.39
Reliability	.890	.840

Note. Extraction Method: Principal Component Analysis. Rotation Method: Varimax with Kaiser Normalization. Δ
Rotation converged in 3 iterations

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Appendix 4.3

Component Matrix for Factor Analysis of Threat scale

Item	1
Threat1 - Does this change make me feel anxious?	.838
Threat2 - Will the outcome of this change be negative?	.851
Threat3 - How threatening is this change?	.863
Threat4 - Is this change going to have a negative impact on me?	.842
Eigenvalues	2.88
% of Variance	71.99
Reliability	.870

Note. Extraction Method: Principal Component Analysis, 1 component extracted

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Appendix 4.4

Component Matrix for Factor Analysis of Challenge scale

Item	1
Challenge1 - Is this change going to have a positive impact on me?	.675
Challenge2 - How eager am I to tackle this problem/change?	.857
Challenge3 - To what extent can I become a stronger person because of this change?	.819
Challenge4 - To what extent am I excited thinking about the outcome of this change?	.881
Eigenvalues	2.63
% of Variance	65.94
Reliability	.826

Note. Extraction Method: Principal Component Analysis, 1 component extracted

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Appendix 4.5

Rotated *Component Matrix for Factor Analysis of Safety Scale*

Items	1	2	3	4	5
Safety1 - JS1 - My job is dangerous				.897	
Safety1- JS2 - My job is safe				.488	
Safety1 - JS3 - My job is Hazardous				.874	
Safety1 - JS4 - My job is risky				.769	
Safety1 - JS5 - My job is unhealthy				.463	
Safety1 - JS6 - I could get hurt easily in my job				.906	
Safety1 - JS7 - My job is unsafe				.770	
Safety1 - JS8 - I fear for my health in my job				.543	
Safety1 - JS9 - My job contains the chance of death				.864	
Safety1 - JS10 - My job is scary				.632	
Safety2 - People1 - Reverse coded - Ignores safety rules			.774		
Safety2 - People2 - Reverse coded - Don't care about others safety			.701		
Safety2- People3 - Pay attention to safety rules			.801		
Safety2- People4 - Follow safety rules			.808		
Safety2- People5 - Look out for others safety			.748		
Safety2- People6 - Encourage others to be safe			.750		
Safety2 - People7 - Reverse coded - Take chances with safety			.796		
Safety2- People8 - Keep work areas clean			.411		
Safety2- People9 - Safety orientated			.687		
Safety2 - People10 - Reverse coded - Don't pay attention			.656		
Safety3- Supervisor1 - Praises safe work behaviors	.801				
Safety3- Supervisor2 - Encourages safe behaviors	.762				
Safety3- Supervisor3 - Keeps workers informed of safety rules	.819				
Safety3- Supervisor4 - Rewards safe behaviors	.683				
Safety3- Supervisor5 - Involves workers in setting safety goals	.778				
Safety3- Supervisor6 - Discusses safety issues with others	.814				
Safety3- Supervisor7 - Updates safety rules	.823				
Safety3- Supervisor8 - Trains workers to be safe	.764				
Safety3- Supervisor9 - Enforces safety rules	.762				
Safety3- Supervisor10 - Acts on safety suggestions	.750				
Safety4- Management1 - Provides enough safety training programs					.642
Safety4- Management2 - Conducts frequent safety inspections					.732

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Safety4- Management3 - Investigates safety problems quickly					.690
Safety4- Management4 - Rewards safe workers					.415
Safety4- Management5 - Provides safe equipment					.654
Safety4- Management6 - Provides safe working conditions					.666
Safety4- Management7 - Responds quickly to safety concerns					.666
Safety4- Management8 - Helps maintain clean work area					.550
Safety4- Management9 - Provides safety information					.671
Safety4- Management10 - Keeps workers informed of hazards					.636
Safety5 - SP1 - Is worthwhile				.759	
Safety5 - SP2 - Helps prevent accidents				.766	
Safety5 - SP3 - Is useful				.816	
Safety5 - SP4 - Is good				.732	
Safety5 - SP5 - Is first-rate				.655	
Safety5 - SP6 - Reverse coded - Is unclear				.609	
Safety5 - SP7 - Is important				.725	
Safety5 - SP8 - Is effective in reducing injuries				.737	
Safety5 - SP9 - Reverse coded - Does not work				.665	
Eigenvalues	16.18	5.90	3.94	2.98	2.20
% of Variance	33.02	12.05	8.05	6.09	4.49
Rotated Squared Loadings	7.47	6.13	6.01	5.40	5.25
% of Variance	15.25	12.51	12.26	11.02	10.72
Reliability	.953	.915	.941	.905	.908

Note. Extraction method: PCA, Varimax rotation with Kaiser normalisation, rotation converged in 6 iterations.

Note 2. Component 1: supervisor safety, Component 2: co-workers safety, Component 3: safety programmes, Component 4: job safety, Component 5: management safety.